Progressive Scan CCD IP7151/IP7152

NETWORK CAMERA

User's Manual



www.vivotek.com

IP Surveillance

Product name:	Network Camera (IP7151 / IP7152)
Release Date:	2007/09/20
Manual Revision:	1.0
Web site:	www.vivotek.com
Email:	technical@vivotek.com
	sales@vivotek.com
Made in Taiwan.	

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Before You Use This Product

The use of surveillance devices may be prohibited by law in your country. The Network Camera is not only a high-performance web-ready camera but also can be part of a flexible surveillance system. It is the user's responsibility to ensure that the operation of such devices is legal before installing this unit for its intended use.

It is important to first verify that all contents received are complete according to the list in the "Package Contents" chapter. Take notice of the warnings in "Quick installation guide" before the Network Camera is installed, then carefully read and follow the instructions in the "Installation" chapter to avoid damages due to faulty assembly and installation. This also ensures the product is used properly as intended.

The Network Camera is a network device and its use should be straightforward for those who have basic network knowledge. The "Troubleshooting" chapter in the Appendix provides remedies to the most common errors in set up and configuration. You should consult this chapter first if you run into a system error.
The Network Camera is designed for various applications including video sharing, general security/surveillance, etc. The "How to Use" chapter suggests ways to best utilize the Network Camera and ensure proper operations. For the creative and professional developers, the "URL Commands of The Network Camera" chapter serves to be a helpful reference to customize existing homepages or integrating with the current web server.

For paragraphs preceded by ⚠ the reader should use caution to understand completely the warnings. Ignoring the warnings may result in serious hazards or injuries.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Table of Contents

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Package Contents

IP7151/IP7152



Software CD



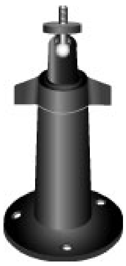
Power adapter



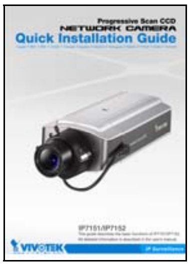
Lens



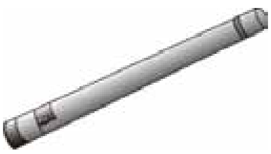
Camera stand



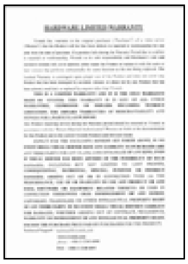
Quick installation guide



Antenna (IP7152 only)



Warranty card



www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Installation

In this manual, "User" refers to whoever has access to the Network Camera, and "Administrator" refers to the person who can configure the Network Camera and grant user access to the camera.

Hardware installation



Please verify that your product package contains all the accessories listed in the foregoing Package Contents. Depending on the user's application, an Ethernet cable may be needed. The Ethernet cable should meet the specs of UTP Category 5 and not exceed 100 meters in length.

> ⚠ Connect the power adapter jack to the Network Camera before plugging in to the power socket. This will reduce the risk of accidental electric shock.

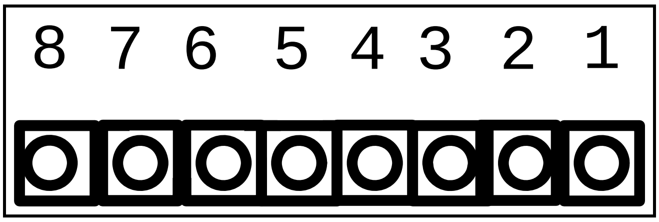
Upon powering up, the status LED lights red first and then the device will go through booting process. The status LED will be steady green while getting IP address. After that, it will blink green every other second as heartbeats to indicate alive.

To install in Ethernet

Make sure the Ethernet is firmly connected to a switch hub. After attaching the Ethernet cable plug in the power adapter. If the LED turns out to blink green-color, go to next paragraph “Software installation”. For IP7152, if the Ethernet is not available, it will switch to wireless LAN mode.

This Network Camera provides a general I/O terminal block with one digital input and one

digital output device control. The pin definition is as below.



1: Power
2: Digital Output
3: Digital Input
4: Ground
5: AC 24V input
6: AC 24V input
7: RS-485 -
8: RS-485 +

Software installation

At the end of the hardware installation, users can use "Installation Wizard 2" program included in the product CDROM to find the location of the Network Camera. There may be many Network Cameras in the local network. Users can differentiate the Network Cameras with the serial number. The serial number is printed on the labels on the carton and the back of the Network Camera body. Please refer to the user's manual of Installation Wizard 2 for details.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Once installation is complete, the Administrator should proceed to the next section "Initial access to the Network Camera" for necessary checks and configurations.

Initial Access to the Network Camera

Check Network Settings

The Network Camera can be connected either before or immediately after software installation onto the Local Area Network. The Administrator should complete the network settings on the configuration page, including the correct subnet mask and IP address of gateway and DNS. Ask your network administrator or Internet service provider for the detail information. By default the Network Camera requires the Administrator to run installation every time it reboots. If the network settings are to remain unchanged, disable the Install option. Refer to "Network settings" on the System Configuration page for details. If any setting is entered incorrectly and cannot proceed to setting up the Network Camera, restore the factory settings following the steps in the "Troubleshooting" chapter of the Appendix.

Add Password to prevent Unauthorized Access

The default Administrator's password is blank and the Network Camera initially will not ask for any password. The Administrator should immediately implement a new password as a matter of prudent security practice. Once the Administrator's password is saved, the Network Camera will ask for the user's name and password before each access. The Administrator can set up a maximum of twenty (20) user accounts. Each user can access the Network Camera except to perform system configuration. Some critical functions are exclusive for the Administrator, such as system configuration, user administration, and software upgrades. The user name for the Administrator is permanently assigned as "root". Once the password is changed, the browser will display an authentication window to ask for the new password. **Once the password is set, there is no provision to recover the Administrator's password. The only option is to restore to the original factory default settings.**

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

How to Use

A PC with Windows operating system can use the Internet Explorer to connect to the Network Camera. A plug-in will be installed into the IE when it is connected for the first time. A PC with Linux operating system can connect to the camera using a browser like Firefox. It needs to install QuickTime first to view streaming.

Authentication

After opening the Web browser and typing in the URL of the Network Camera, a dialogue window pops up to request a username and password. Upon successful authentication, the following figure is displayed.

The foreground is the login window and the background shows the message if authentication fails. The user may check the option box to save the password for future convenience. This option is not available to the Administrator for obvious reason.

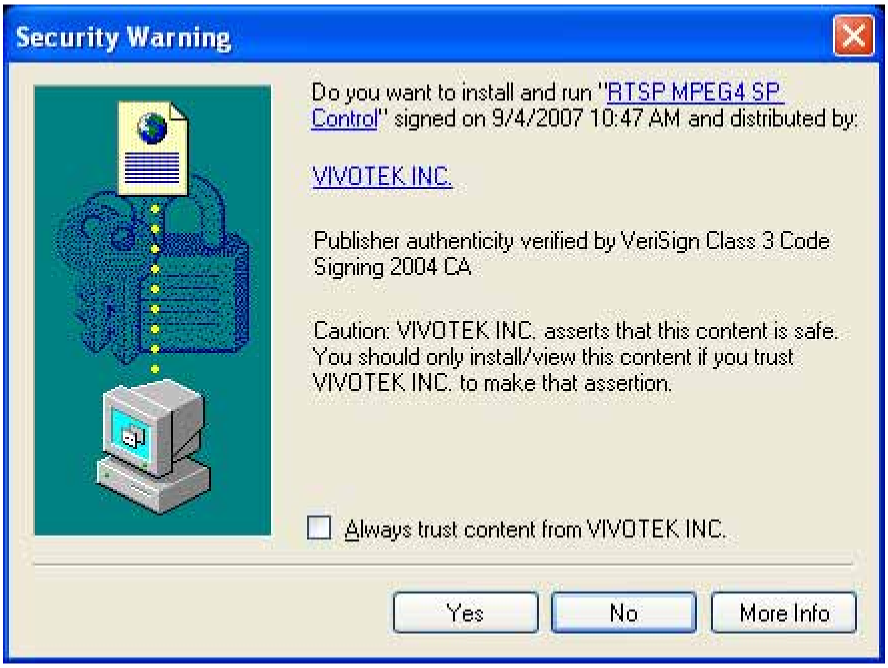


Installing plug-in

For the initial access to the Network Camera in Windows, the web browser may prompt

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

for permission to install a new plug-in for the Network Camera when the Internet Explorer. Permission request depends on the Internet security settings of the user's PC or notebook. If the highest security level is set, the computer may prohibit any installation and execution attempt. This plug-in has been registered for certificate and is used to display the video in the browser. Users may click on  to proceed. If the web browser does not allow the user to continue to install, check the Internet security option and lower the security levels or contact your IT or networking supervisor for help.

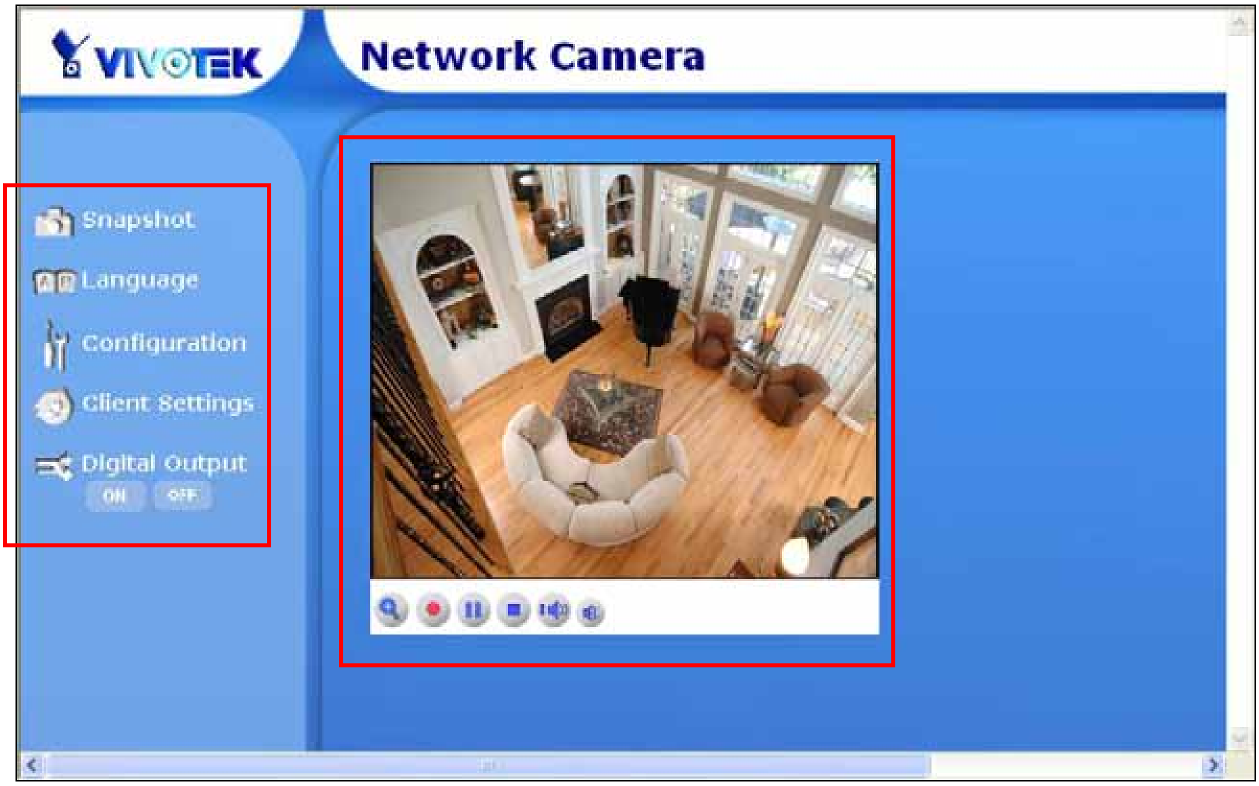


www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Primary user's capability

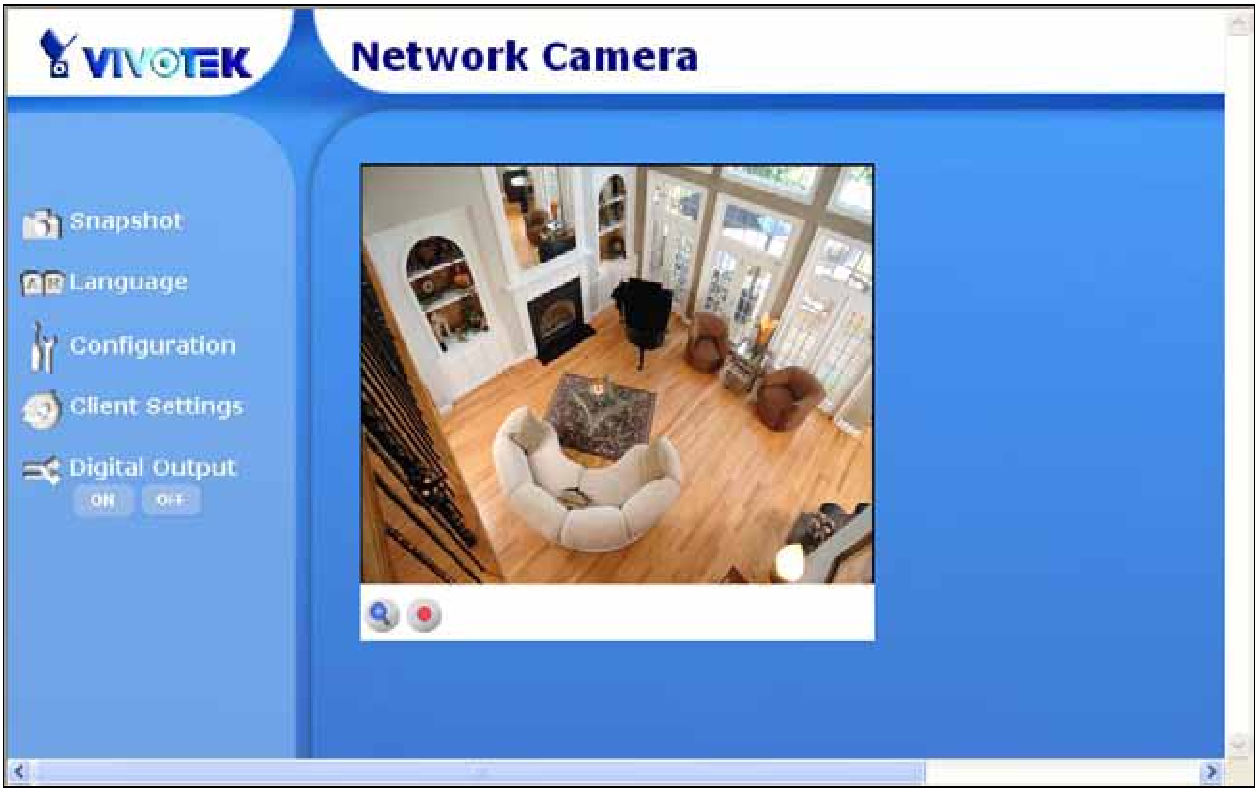
Main Screen with Camera View

The main page layout has two parts:
Configuration functions: The camera can be configured using these user interfaces.
Camera View: What the camera sees.
Click on the configuration link to the left of the image window to enter the configuration page.
Here is the layout in IE when it is MPEG-4 streaming.



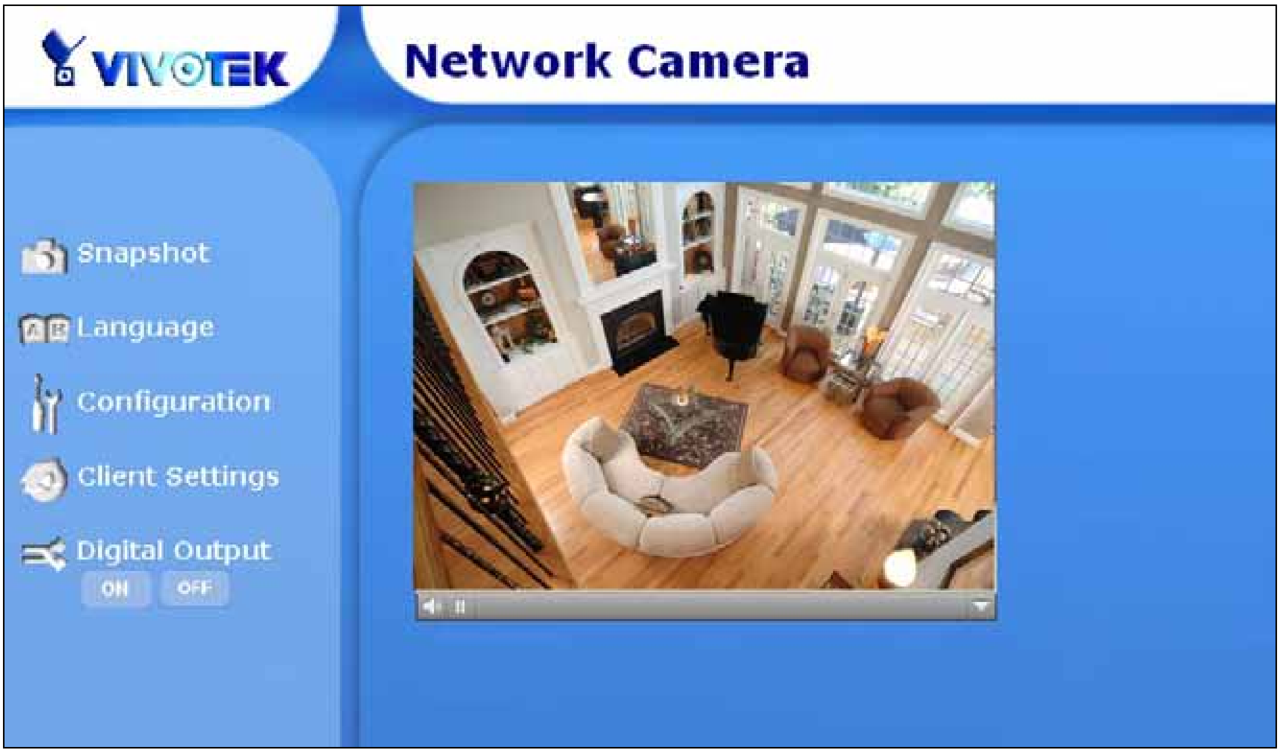
www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

The function in JPEG will be a little different when it is JPEG streaming. Only digital zoom and record button are supported.



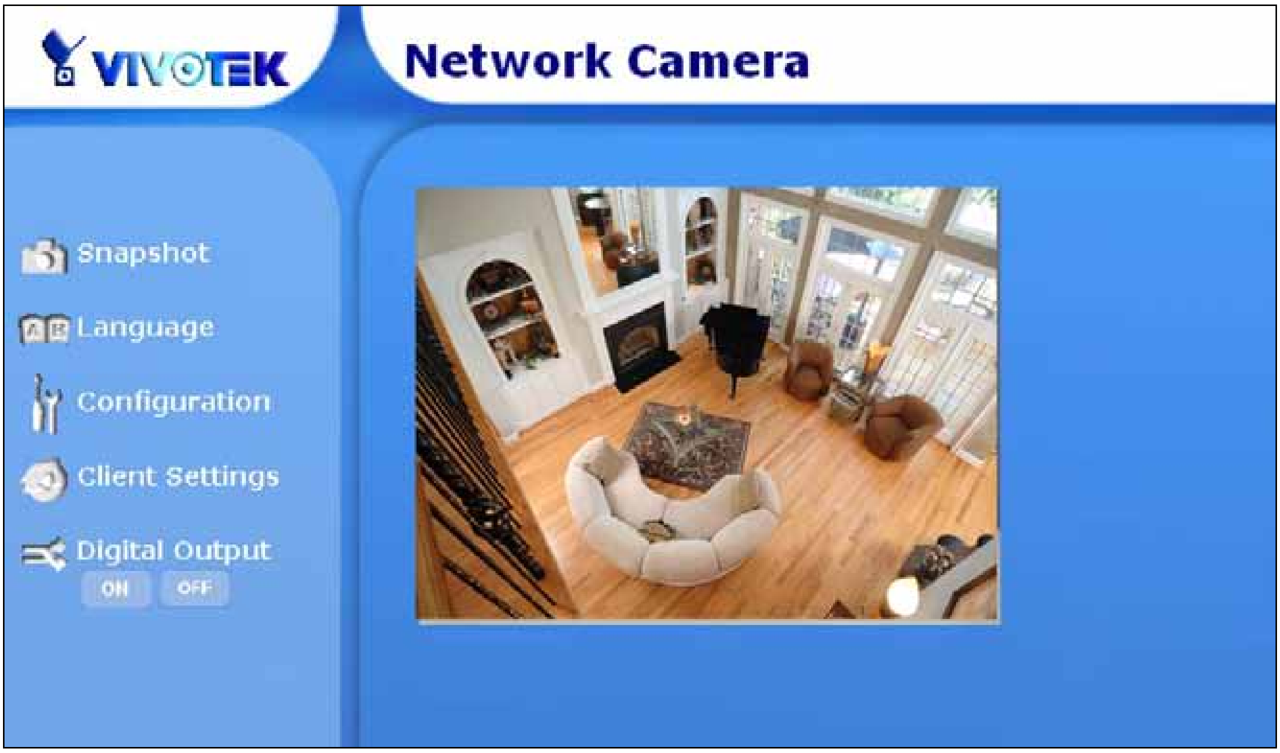
www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Here is the layout in Firefox when it is MPEG-4 streaming. It uses QuickTime to streaming.



www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

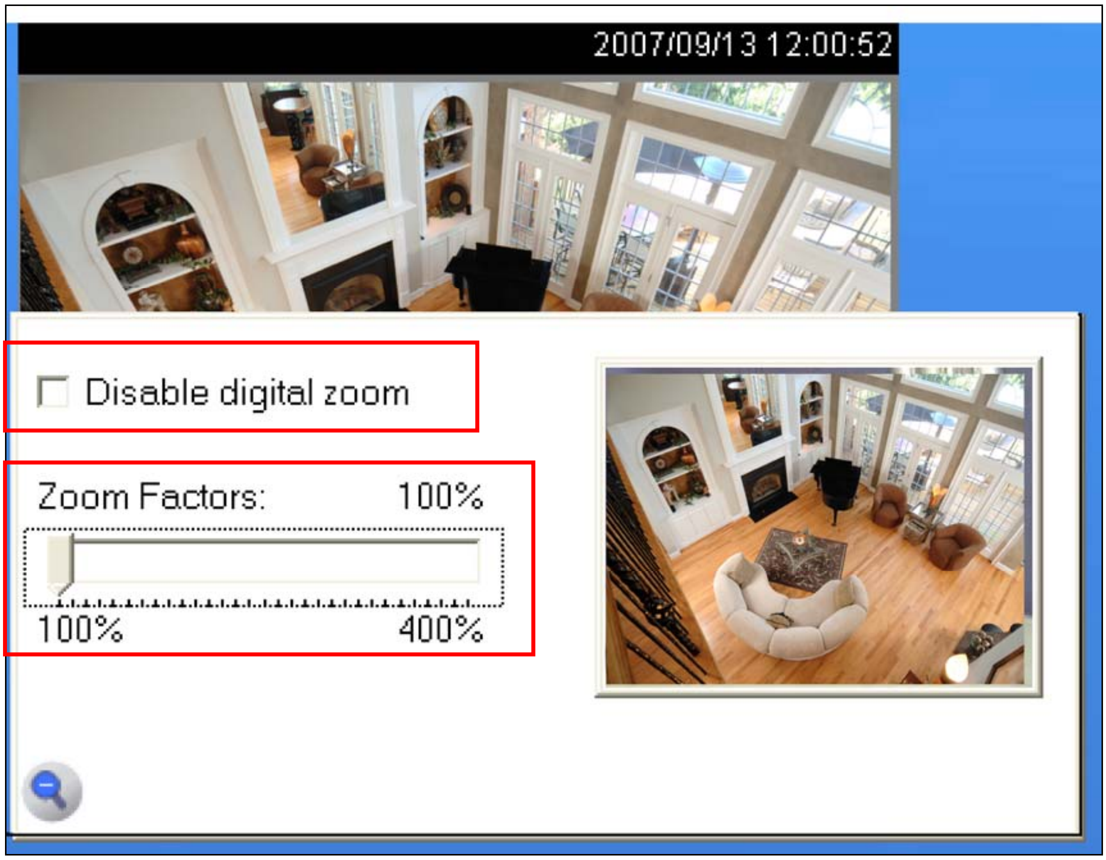
Here is the layout in Firefox when it is JPEG streaming.



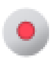
www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Digital Zoom

Click on the magnifier icon under the camera view then the digital zoom control panel will be shown. Uncheck “Disable digital zoom” and use the slider control to change the zoom factors.



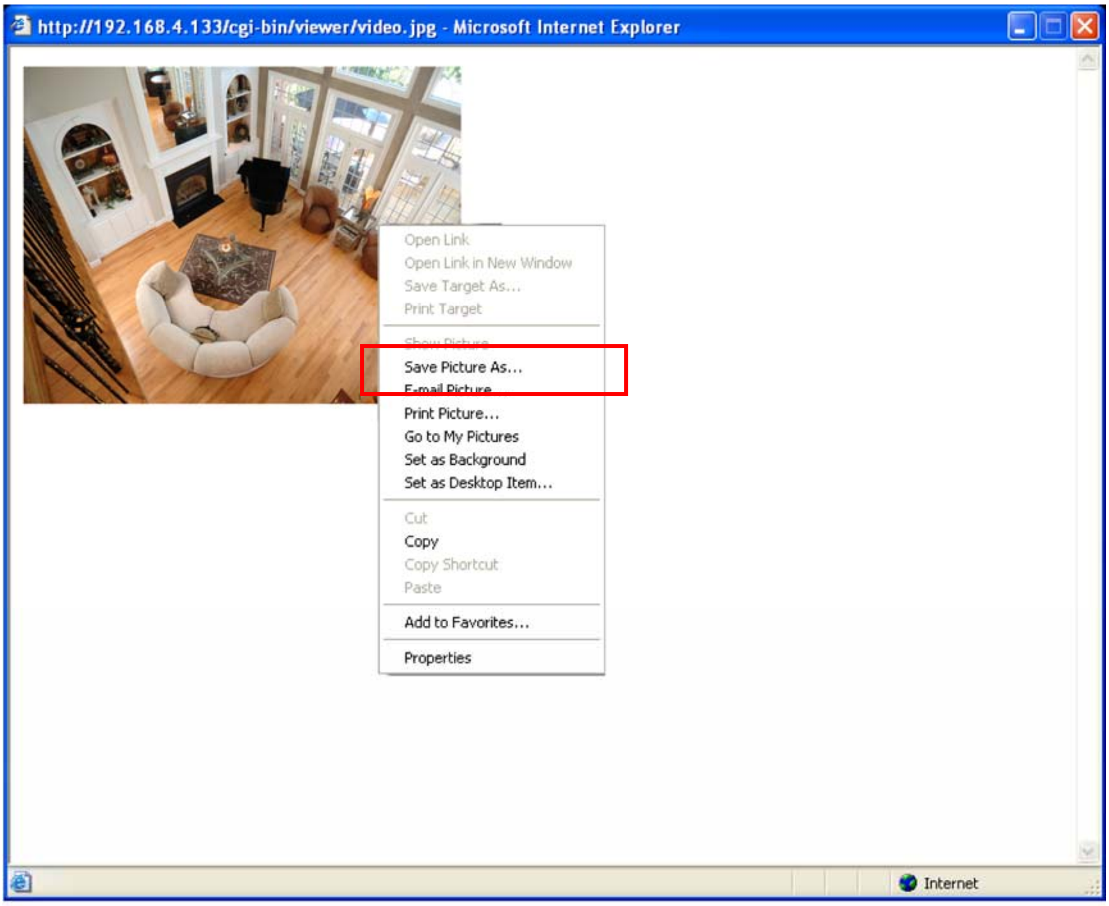
MP4 Recording

Click on the red circle button  on the plug-in to start video recording in MP4 file format. You can set the related options in client setting page.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Snapshot

Click on "**Snapshot**", web browser will pop up a new window to show the snapshot. Users can point at the snapshot and click the right button of mouse to save it.

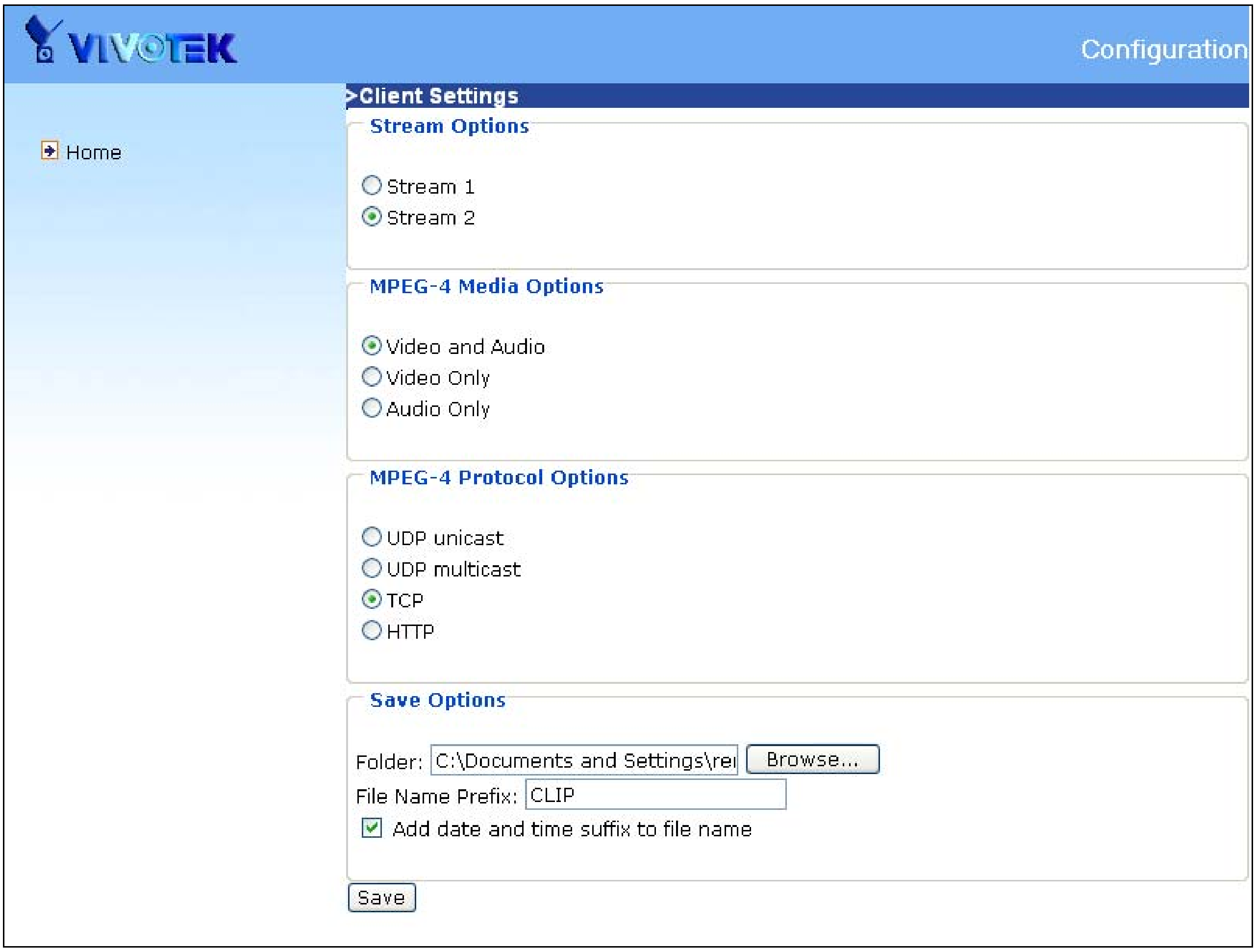


Language

Click on the language, all supported languages are shown in the drop-down list. The user can choose the different display language.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Client settings



There are four settings for the client side in IE.

The first one is "**Stream Options**" for users to determine which stream to be streaming. This product supports dual-stream. Therefore, there are two streams to choose.

The second one is "**MPEG-4 Media Options**" for users to determine which media to be streamed under MPEG-4 mode.

The third one is "**MPEG-4 Protocol Options**" which allows choices on connection protocol between client and server. There are four protocols choices to optimize your usage – UDP unicast, UDP multicast, TCP and HTTP.

The **UDP unicast** protocol allows for more real-time audio and video streams. However,

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

some packets may be lost due to network burst traffic and images may be obscured.

The **UDP multicast** protocol allows to save the bandwidth of server while serving multiple clients at the same time.

The **TCP** protocol allows for less packet loss and produces a more accurate video display. The downside with this protocol is that the real-time effect is worse than that with the UDP protocol.

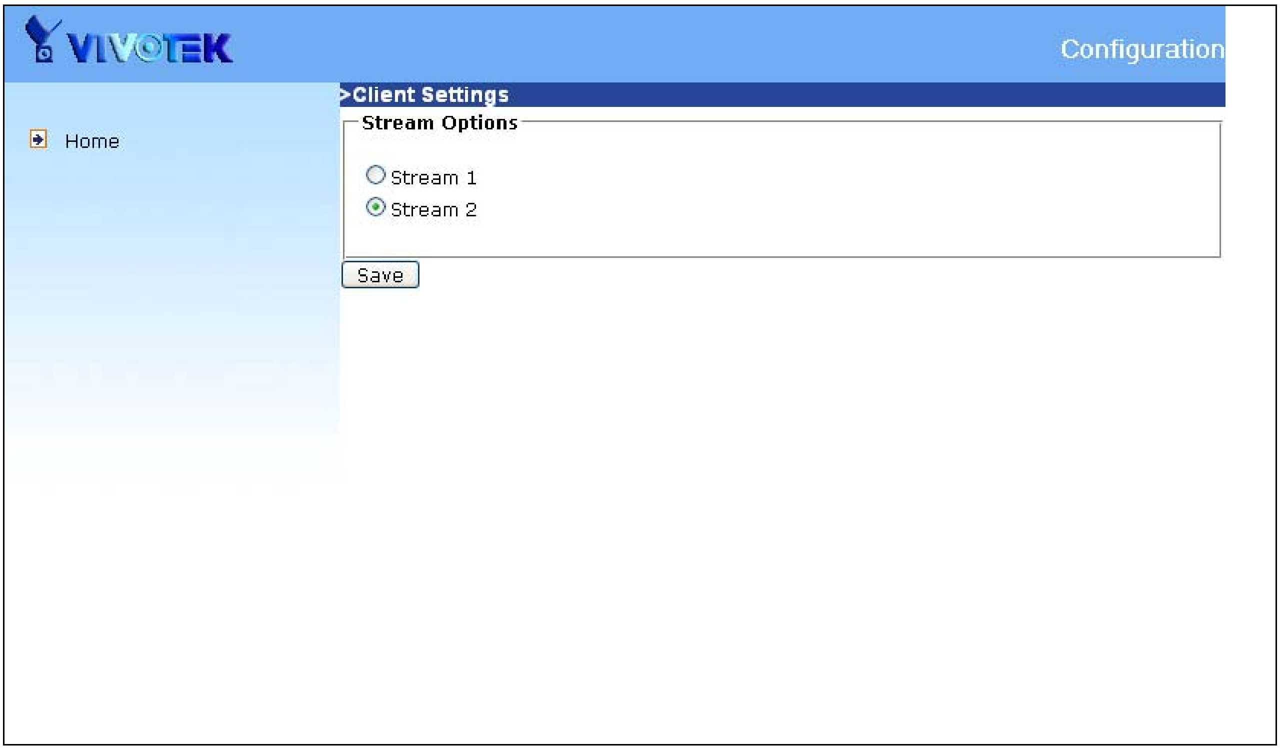
The **HTTP** protocol allows the same quality as TCP protocol and the user don't need to open specific port to streaming under some network environment.

If no special need is required, UDP unicast protocol is recommended. Generally speaking, the client's choice will be in the order of UDP multicast → UDP unicast → TCP → HTTP. After the Network Camera is connected successfully, "Protocol Option" will indicate the selected protocol. The selected protocol will be recorded in the user's PC and will be used for the next connection. If the network environment is changed, or the user wants to let the web browser to detect again, manually select the UDP protocol, save, and return HOME to re-connect.

The fourth one is "**Save Options**". User can specify the recording folder, file name prefix and suffix here.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

There is only one setting “**Stream Options**” for the client side in Firefox. User can choose to view stream1 and stream2.



<url> *http://<Network Camera>/clientset.html*

<Network Camera> is the domain name or the original IP address of the Network Camera.

Digital output

Click on “**ON**”, the digital output of the Network Camera will be triggered. Or, clicking on “**OFF**” can let the digital output turn into normal state.

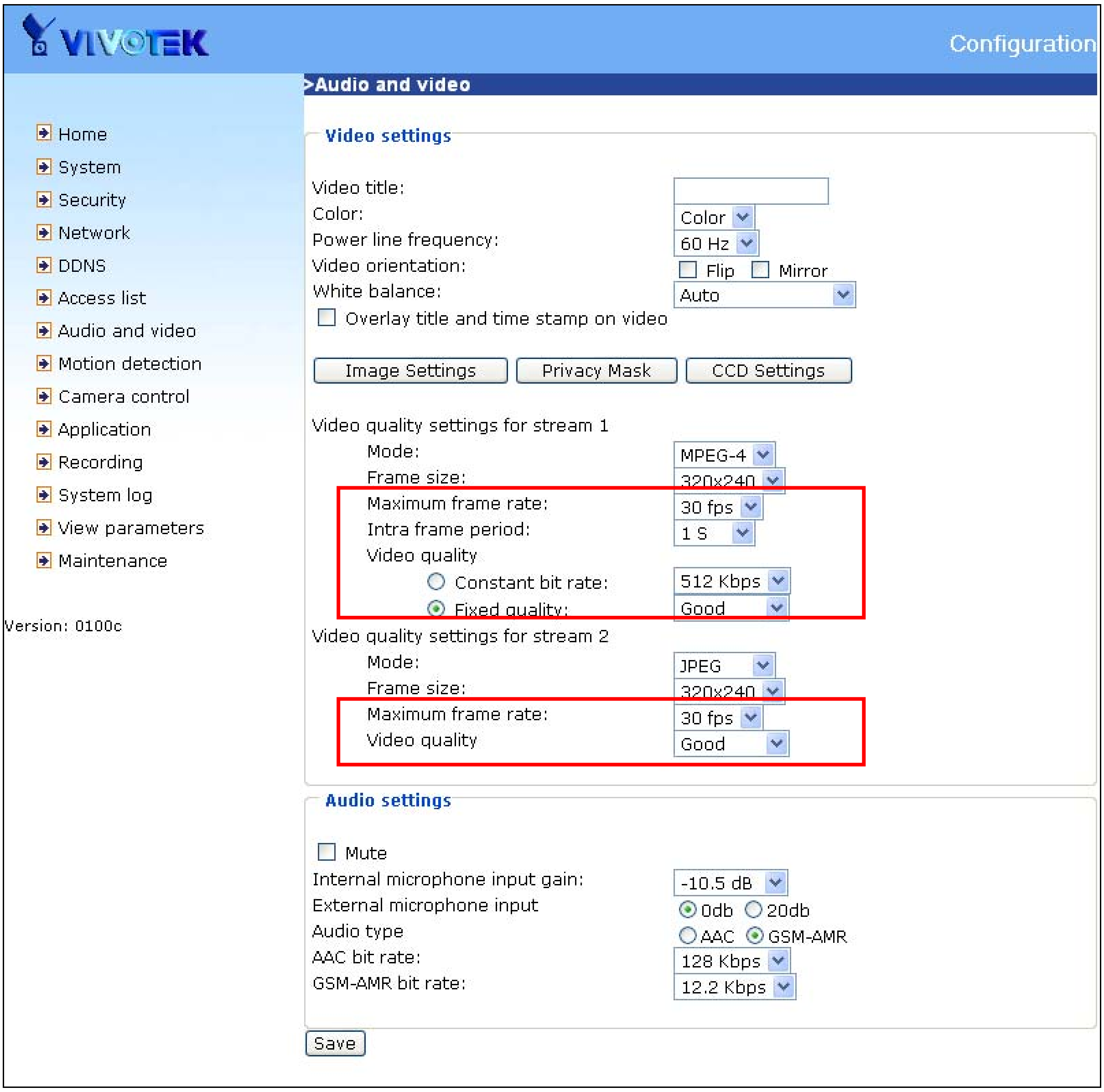
Administrator’s capability

Fine-tuning for Best Performance

Best performance generally equates to the fastest image refresh rate with the best

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

video quality, and at the lowest network bandwidth as possible. The three factors, “Maximum frame rate”, “Constant bit rate”, and “Fix quality” for MPEG-4 mode and “Maximum frame rate” and “Fix quality” for JPEG mode on the Audio and Video Configuration page, are correlative to allow for achieving the best performance possible.



For Viewing by Mobile Phone

Most 3GPP cell phone supports media streaming with MPEG4 video and GSM-AMR audio. Due to the limitation of the bandwidth for 3GPP, only 176x144 video solution will be supported for cell phone viewing. Please set related video settings first as

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

mentioned when viewing by mobile phone.

For Best Real-time Video Images

To achieve good real-time visual effect, the network bandwidth should be large enough to allow a transmission rate of greater than 20 image frames per second. If the broadband network is over 1 Mbps, set the “Constant bit rate” to 1000Kbps or 1200Kbps, or set “Fixed quality” at the highest quality. The maximum frame rate is 30. If your network bandwidth is more than 512Kbps, you can fix the bit rate according to your bandwidth and set the maximum frame rate to 30 fps. If the images vary dramatically in your environment, you may want to slow the maximum frame rate down to 20 fps in order to lower the rate of data transmission. This allows for better video quality and the human eyes cannot readily detect the differences between those of 20, 25, or 30 frames per second. If your network bandwidth is below 512 Kbps, set the “Constant bit rate” according to your bandwidth and try to get the best performance by fine-tuning with the “Maximum frame rate”. In a slow network, greater frame rate results in blur images. Video quality performance will vary somewhat due to the number of users viewing on the network; even when the parameters have initially been finely tuned. Performance will also suffer due to poor connectivity because of the network’s burst constraint.

Only Quality Images Will Do

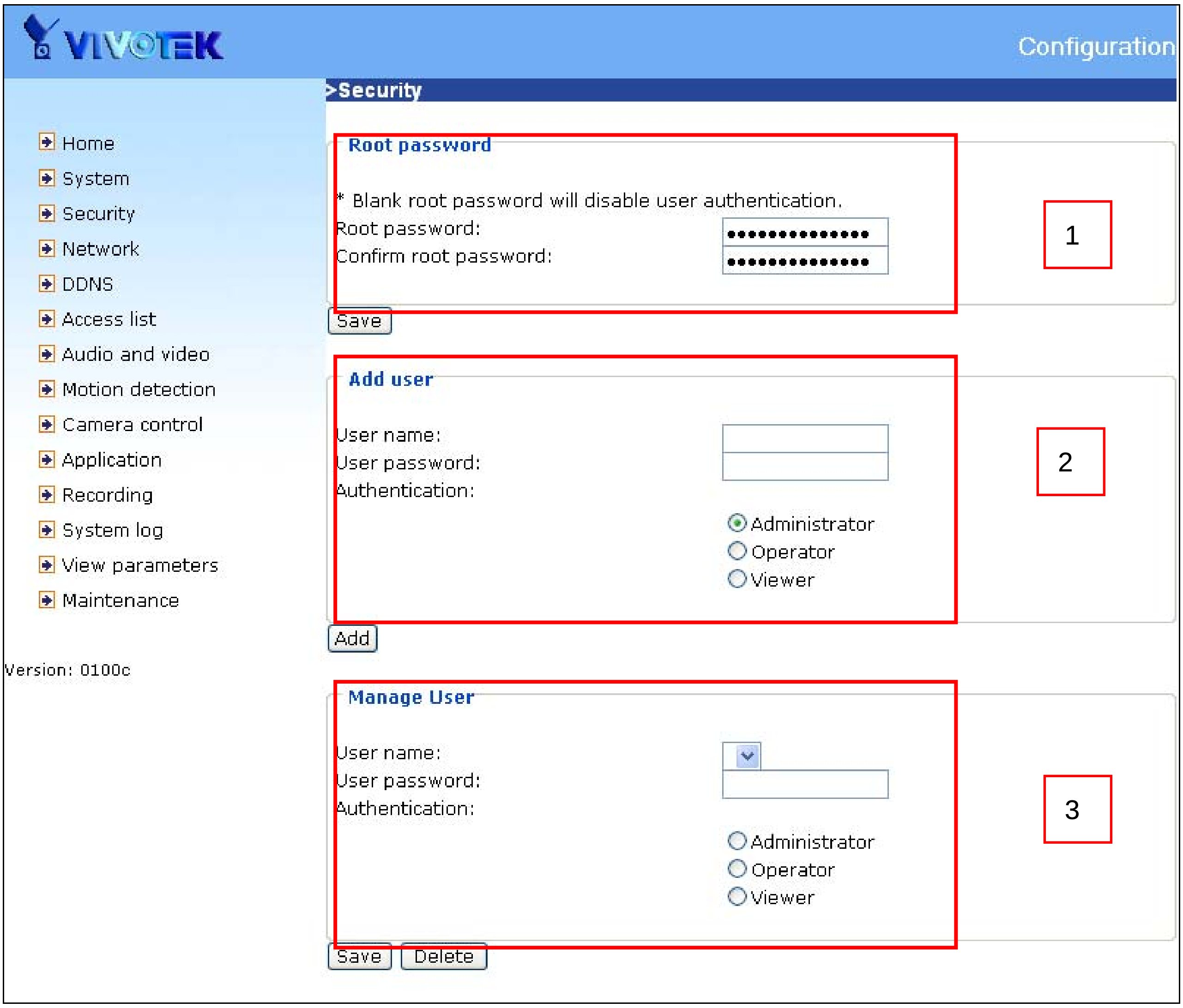
To have the best video quality, you should set “Fixed quality” at “Detailed” or “Excellent” and adjust the “Maximum frame rate” to match your network’s bandwidth. If your network is slow and you receive “broken” pictures, go to the TCP or HTTP protocol in “MPEG-4 Protocol Options” and choose a more appropriate mode of transmission. The images may suffer a time delay due to a slower connection. The delay will also increase with added number of users.

Somewhere Between Real-time and Clear Images

If you have a broadband network, set “Fixed quality” at ”Normal” or better, rather than setting “Constant bit rate”. You can also fix the bandwidth according to your actual network speed and adjust the frame rate. Start from 30 fps down for best results but not below 15 fps. If the image qualities are not improved, select a lower bandwidth setting.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Opening accounts for new users



Protect Network Camera by passwords

The Network Camera is shipped without any password by default. That means everyone can access the Network Camera including the configuration as long as the IP address is known. It is necessary to assign a password if the Network Camera is intended to be accessed by others. Type a new word twice in ① to enable protection. This password is used to identify the administrator. Then add an account with user name, password and authentication for your friends in ②. You can edit or delete users from ③.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Build a security application

The Administrator can use the built-in motion detection to monitor any movement to perform many useful security applications. To upload the snapshots, users can choose either email, FTP, HTTP or Network storage according to user's needs. All servers setting are in Server section on Application page. Refer to the definition section for detailed configuration.

1. Click on "**Configuration**" on homepage,
2. Click on "**Motion detection**" at the left column,
3. Check "Enable motion detection",
4. Click on new to have a new window to monitor video,
5. Type in a name to identify the new window,
6. Use the mouse to click, hold, and drag the window corner to resize or the title bar to move,
7. Fine-tune using the "Sensitivity" and "Percentage" fields to best suit the camera's environment. Higher "Sensitivity" detects the slighter motion. Higher "Percentage" discriminates smaller objects.
8. Clicking on "Save" enables the activity display. Green means the motion in the window is under the watermark set by Administrator and red means it is over the watermark,
9. Click on "**Application**" at the left column,
10. Add a server in server section,
11. Add a media with snapshot type in media section. And Set the number of pre-event and post-event images to be uploaded
12. Add a event in event section
    - Enter one event name and enable this event.
    - Check the weekdays as you need and give the time interval to monitor the motion detection every day,
    - Select the Trigger on Motion detection and Check the window name set in step 5
    - Set the appropriate delay time to avoid continuous false alarms following the original event

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

- Check the server name set in Step 10 and select the media name set in Step 11.

13. Click on save to validate.

Software revision upgrade

Customers can obtain the up-to-date software from the web site of Vivotek. An easy-to-use Upgrade Wizard is provided to upgrade the Network Camera with just a few clicks. The upgrade function is opened to the Administrator only. To upgrade the system, follow the procedures below.

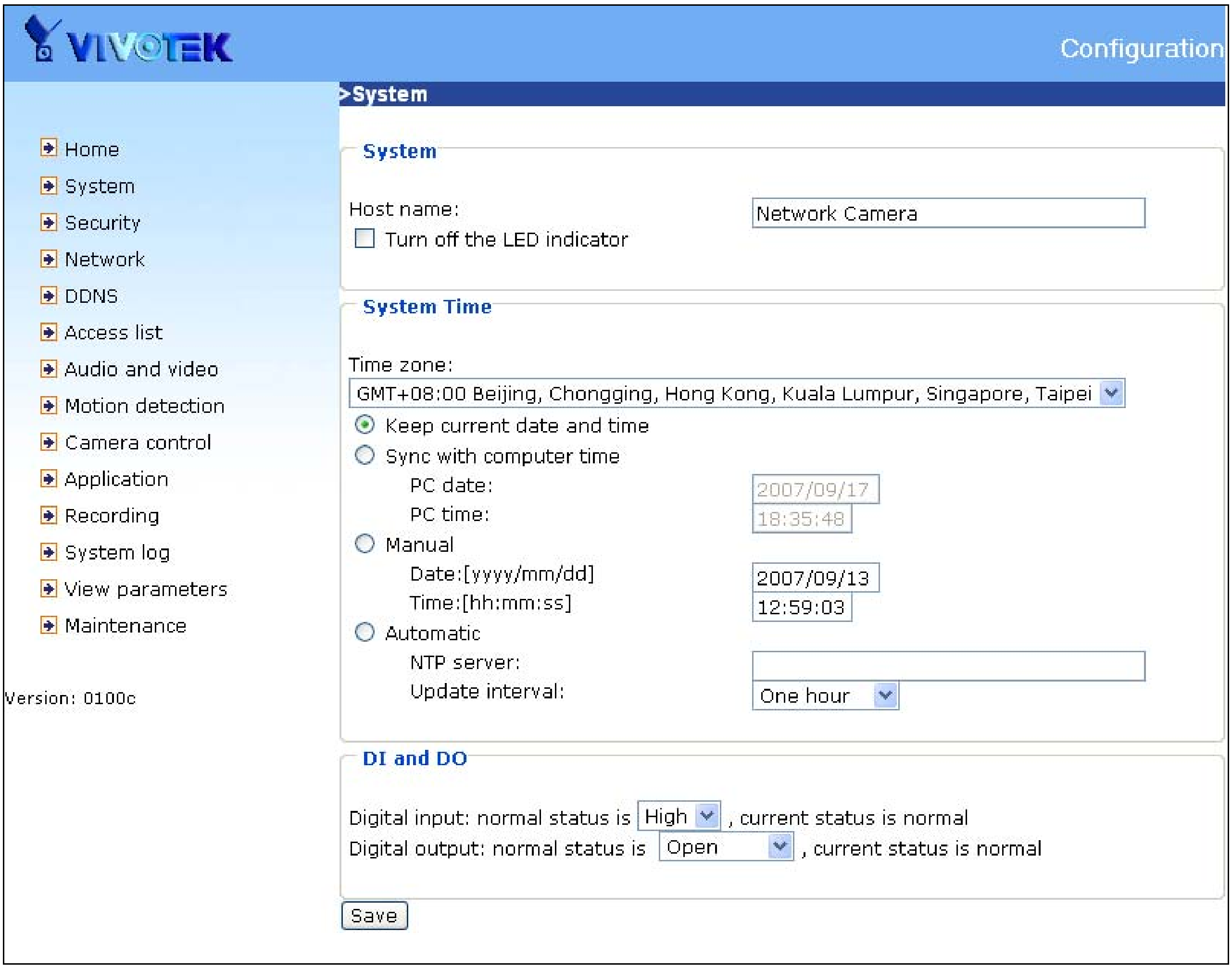
1. Download the firmware file named “xxx.pkg” from the appropriate product folder.
2. Run the Installation Wizard 2 and proceed following the prompts. Refer to the instructions of the Installation Wizard 2 for details.
3. Or upgrade firmware from HTTP web page directly
4. The whole process will finish in a few minutes and it will automatically restart the system.

⚠ If power fails during the writing process of Flash memory, the program in the memory of the Network Camera may be destroyed permanently. If the Network Camera cannot restart properly, ask your dealer for technical service.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Definitions in Configuration

Only the Administrator can access system configuration. Each category in the left column will be explained in the following pages. The bold texts are the specific phrases on the Option pages. The Administrator may type the URL below the figure to directly enter the frame page of configuration. If the Administrator also wants to set certain options through the URL, read the reference appendix for details.



<url> http://<Network Camera>/setup/system.html

<Network Camera> is the domain name or original IP address of the Network Camera.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

System parameters

"Host name" The text displays the title at the top of the main page.
"Turn off the LED indicator" Check this option to shut off the Status LED. It can prevent the camera's operation being noticed.
"Time zone" Adjust the time with that of the time-servers for local settings.
"Keep current date and time" Click on this to reserve the current date and time of the Network Camera. An internal real-time clock maintains the date and time even when the power of the system is turned off.
"Sync with computer time" Synchronizes the date and time of the Network Camera with the local computer. The read-only date and time of the PC is displayed as updated.
"Manual" Adjust the date and time according to what is entered by the Administrator. Notice the format in the related fields while doing the entry.
"Automatic" Synchronize with the NTP server over the Internet whenever the Network Camera starts up. It will fail if the assigned time-server cannot be reached.
"NTP server" Assign the IP address or domain name of the time-server. Leaving the text box blank connects the Network Camera to the default time-servers.
"**Update interval**" Select hourly, daily, weekly, or monthly update with the time on the NTP server.
"**Digital input**" Select High or Low to define normal status of the digital input. The current status is shown, too.
"**Digital output**" Select Grounded or Open to define normal status of the digital output. The current status is shown, too.

Remember to click on Save to immediately validate the changes. Otherwise, the correct time will not be synchronized.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

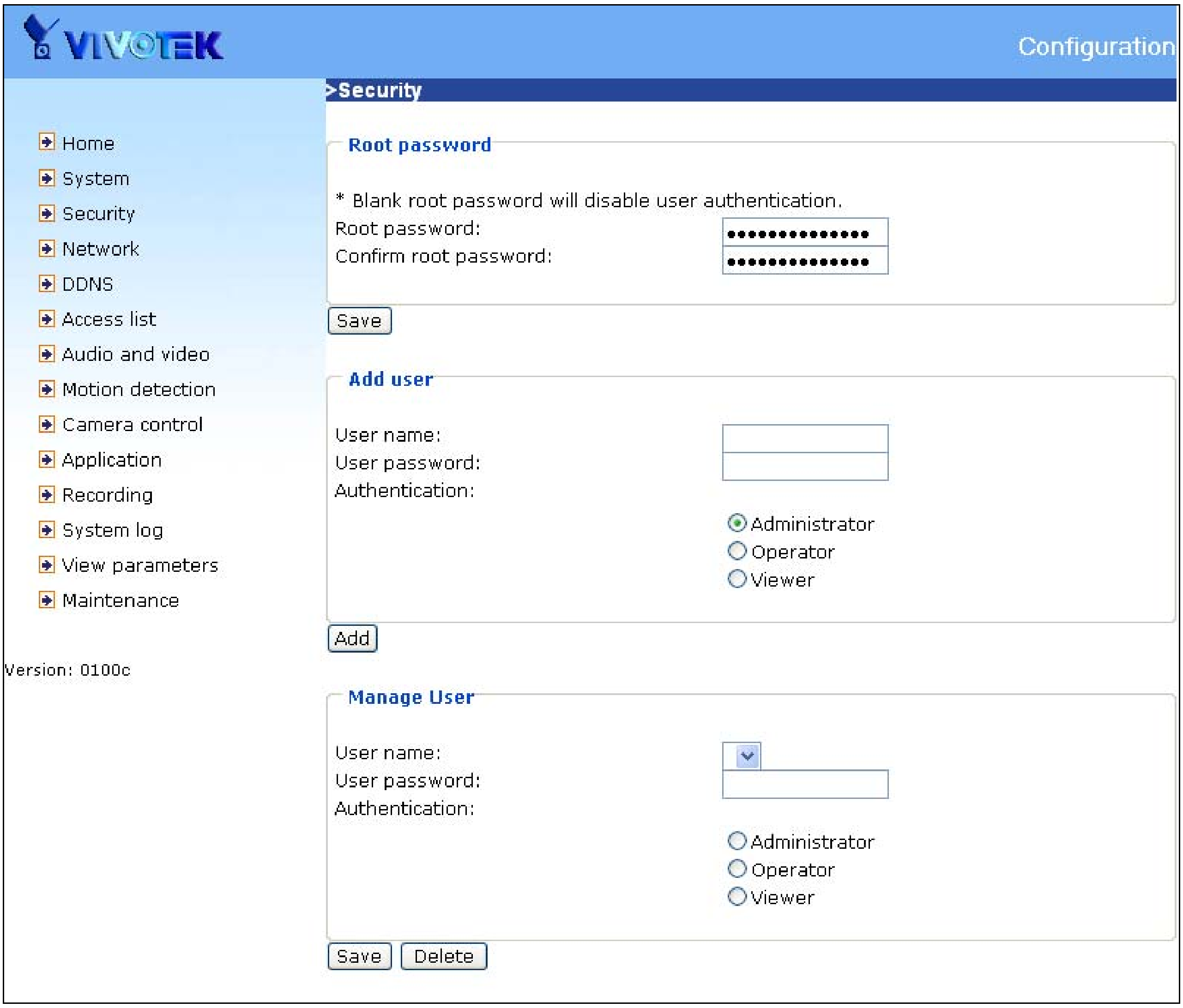
Security settings

"Root password" Change the Administrator's password by typing in the new password identically in both text boxes. The typed entries will be displayed as asterisks for security purposes. After pressing Save, the web browser will ask the Administrator for the new password for access.

"Add user" Type the new user's name and password and press Add to insert the new entry. The new user will be displayed in the user name list. There is a maximum of twenty user accounts. There are three kinds of authentication: Administrator, Operator and Viewer. Administrator can fully control the camera operation. Operator's access right can modify most of camera's parameters except some privilege and network options. Viewer can view, listen and talk to camera; control dido, ptz of camera. Network Camera can provide twenty accounts for your valuable customers or friends.

"Manage user" Pull down the user list to find the user's name and press Delete to delete the selected user. Or edit the password or authentication of the selected user and press Save to take effect.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532



<url> http://<Network Camera>/setup/security.html

<Network Camera> is the domain name or original IP address of the Network Camera.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Network settings

Any changes made on the Network type sectoin will restart the system in order to validate the changes. Make sure every field is entered correctly before clicking on Save.

Network type

"LAN" & **"PPPoE"**

The default type is LAN. Select PPPoE if using ADSL

"Get IP address automatically" & "Use fixed IP address"

The default status is "**Get IP address automatically**". This can be tedious having to perform software installation whenever the Network Camera starts. Therefore, once the network settings, especially the IP address, have been entered correctly, select "**Use fixed IP address**" then the Network Camera will skip installation at the next boot. The Network Camera can automatically restart and operate normally after a power outage. Users can run IP installer to check the IP address assigned to the Network Camera if the IP address is forgotten or using the UPnP function provided by the Network Camera (MS Windows XP provides UPnP function at **My Network Place**).

"IP address" This is necessary for network identification.

"Subnet mask" This is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".

"Default router" This is the gateway used to forward frames to destinations in a different subnet. Invalid router setting will fail the transmission to destinations in different subnet.

"Primary DNS" The primary domain name server that translates hostnames into IP addresses.

"Secondary DNS" Secondary domain name server that backups the Primary DNS.

"Primary WINS server" The primary WINS server that maintains the database of computer name and IP address.

"Secondary WINS server" The secondary WINS server that maintains the database of computer name and IP address.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

"Enable UPnP presentation" Enable the UPnP camera short cut.
"**Enable UPnP port forwarding**" Enable UPnP port forwarding.
"PPPoE" If using the PPPoE interface, fill the following settings from ISP
"User name" The login name of PPPoE account.
"Password" The password of PPPoE account.
"Confirm password" Input password again for confirmation.

HTTP

"Authentication" It supports basic and digest modes.
"Http port" This can be other than the default Port 80. Once the port is changed, the users must be notified the change for the connection to be successful. For instance, when the Administrator changes the
HTTP port of the Network Camera whose IP address is 192.168.0.100 from 80 to 8888, the users must type in the web browser "http://192.168.0.100:8888" instead of "http://192.168.0.100".
"Secondary Http port" It support alternate port to access HTTP server.
"Access name for stream 1" This is the access URL of stream 1 for making connection from client software when its codec type is JPEG.
"Access name for stream 2" This is the access URL of stream 2 for making connection from client software when its codec type is JPEG.
Using http://<ip address>:<http port>/<access name> to make connection.

FTP

"FTP port" This can be other than the default port 21. The user can change this value from 1025 to 65535. After changing, the external FTP client program must change the server port of connection accordingly.

RTSP Streaming

"Authentication" It supports disable, basic and digest modes.
"Access name for stream 1" This is the access URL of stream 1 for making connection from client software when the codec type is MPEG-4.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

"Access name for stream 2" This is the access URL of stream 2 for making connection from client software when the codec type is MPEG-4.

Using rtsp://<ip address>/<access name> to make connection

"RTSP port" This can be other than the default Port 554

"RTP port for video" The video channel port for RTP. It must be an even number.

"RTCP port for video" The video channel port for RTCP. It must be the port number of video RTP plus 1.

"RTP port for audio" The audio channel port for RTP. It must be even number.

"RTCP port for audio" The audio channel port for RTCP. It must be the port number of audio RTP plus 1.

User can modify Multicast setting for stream1 and stream2.

"Always multicast" Select it to enable multicast always.

"Multicast group address" It is used by sources and the receivers to send and receive content.

"Multicast video port" The video channel port for multicast. It must be an even number.

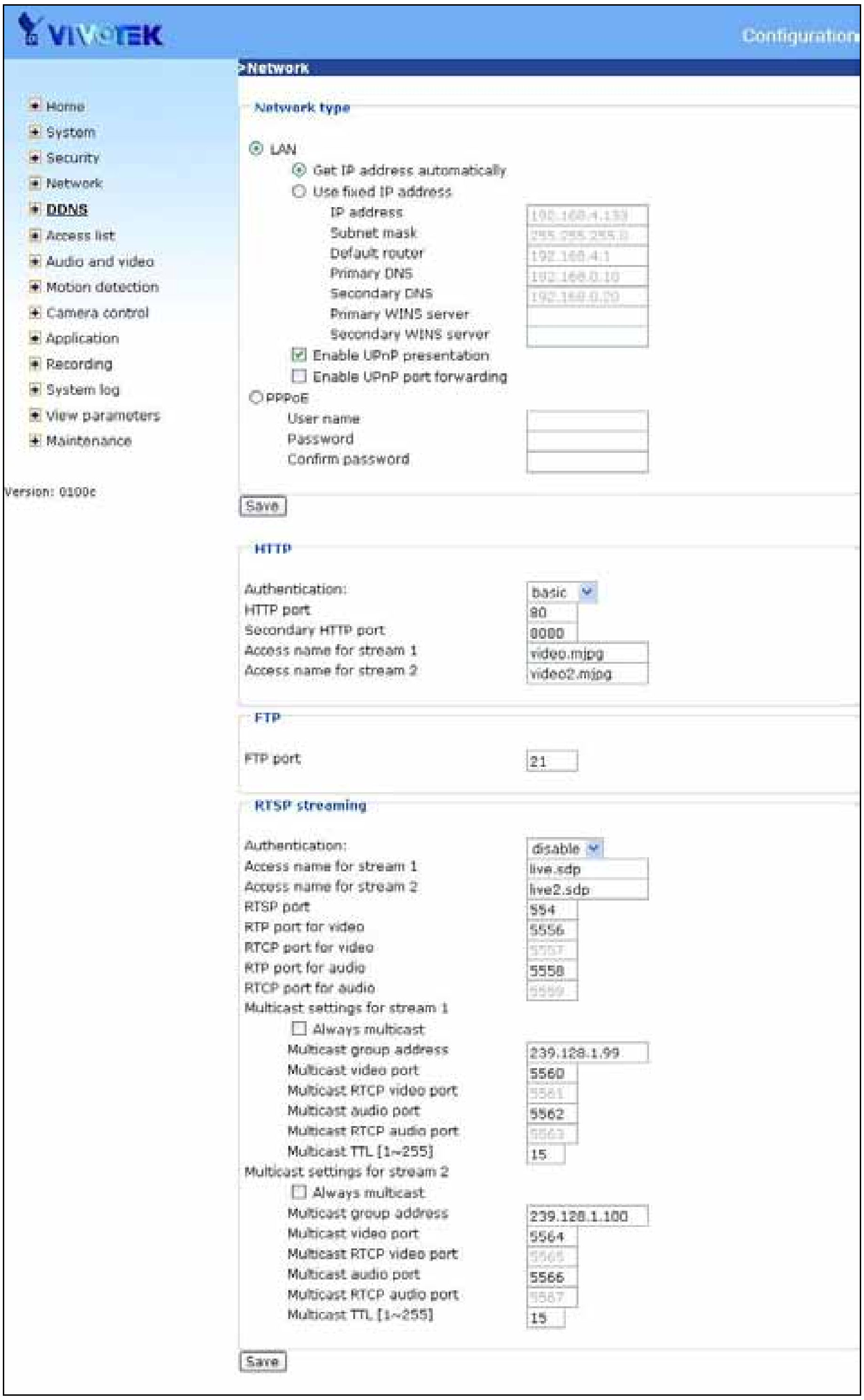
"Multicast RTCP video port" The video channel port for multicast RTCP. It must be the port number of multicast video port plus 1.

"Multicast audio port" The audio channel port for multicast. It must bean an even number.

"Multicast RTCP audio port" The audio channel port for multicast RTCP. It must be the port number of multicast audio port plus 1.

"Multicast TTL" It specifies the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532



<url> *http://<Network Camera>/setup/network.html*

<Network Camera> is the domain name or original IP address of the Network Camera.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

WLAN Settings (IP7152 only)

"SSID" (Service Set Identifier), it is a name that identifies a wireless network. Access Points and wireless clients attempting to connect to a specific WLAN (Wireless Local Area Network) must use the same SSID. The default setting is ***default***. *Note: The maximum length of SSID is 32 single-byte characters and SSID can't be any of ", <, > and space character.*

"Wireless mode" Clicking on the pull-down menu to select from the following options:

"Infrastructure" Make the Network Camera connect to the WLAN via an Access Point. (The default setting)

"Ad-Hoc" Make the Network Camera connect directly to a host equipped with a wireless adapter in a peer-to-peer environment.

"Channel" While in infrastructure mode, the channel is selected automatically to match the channel setting for the selected Access Point. In Ad-Hoc mode, the channel must be manually set to the same channel for each wireless adapter. The default channel setting depends on the installed region.

"TX rate" This field is for selecting the maximum transmission rate on the network. The default setting is "auto", that is the Network Camera will try to connect to the other wireless device with highest transmitting rate.

"Security" Select the data encrypt method

"None" – No data encryption.

"WEP" – allows communication only with other devices with identical WEP settings.

"WPA-PSK" – Use WPA pre-shared key.

"WPA2-PSK" – Use WPA2 pre-shared key.

"Auth Mode" Choosing one of the following modes, (Open is the default setting).

"Open" – communicates the key across the network.

"Shared" – allows communication only with other devices with identical WEP settings.

"Key length" The administrator can select the key length among 64 or 128 bits. 64bits is the default setting.

"Key format" Hexadecimal or ASCII. "**HEX**" is the default setting.

"HEX" digits consist of the numbers 0~9 and the letters A-F.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

"ASCII" is a code for representing English letters as numbers from 0-127 except ", <, > and space characters that are reserved.

"Network Key" Entering a key in either hexadecimal or ASCII format. When selecting different key length, acceptable input length is listed as following:

64 bits key length: 10 Hex digits or 5 characters.

128 bites key length: 26 Hex digits or 13 characters.

Note: When 22("), 3C(<) or 3E(>) are input in network key, the key format can't be changed to ASCII format.

"Algorithm" Choosing one of the following algorithm for WPA-PSK and WPA2-PSK modes

"TKIP"

"AES"

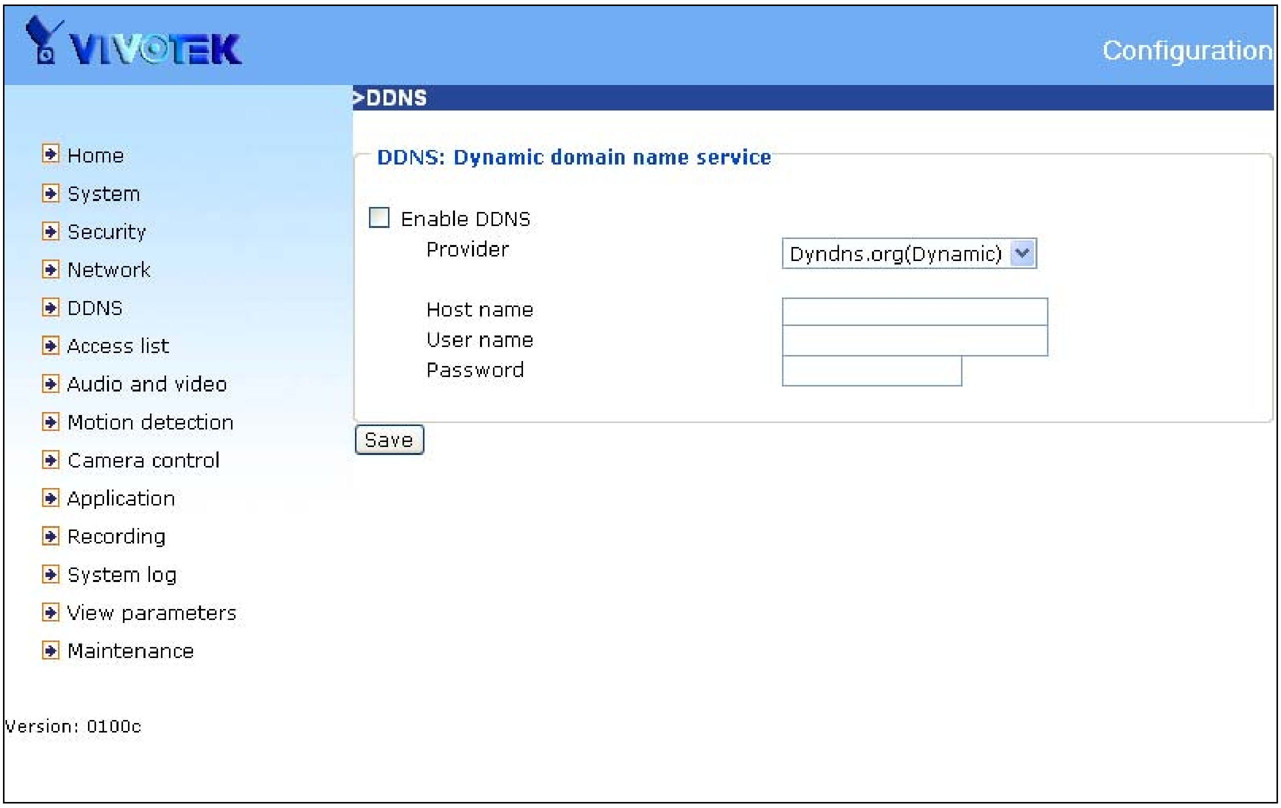
"Pre-shared Key" Entering a key in ASCII format. The length of the key is 8 ~ 63

⚠ Some invalid settings may cause the system failing to respond. Change the Configuration only if necessary and consult with your network supervisor or experienced users for correct settings. Once the system has lost contact, refer to Appendix A for reset and restore procedures.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

DDNS

"Enable DDNS" This option turns on the DDNS function.
"Provider" The provider list contains four hosts that provide DDNS services. Please connect to the service provider's website to make sure the service charges.
"Host Name" If the User wants to use DDNS service, this field must be filled. Please input the hostname that is registered in the DDNS server.
"Username/E-mail" The Username or E-mail field is necessary for logging in the DDNS server or notify the User of the new IP address. Note: when this field is input as "Username" the following field must be input as "Password".
"Password/Key" Please input the password or key to get the DDNS service.
"**Save**" Click on this button to save current settings for the DDNS service and UPnP function.



<url> http://<Network Camera>/setup/ddns.html
<Network Camera> is the domain name or original IP address of the Network Camera.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

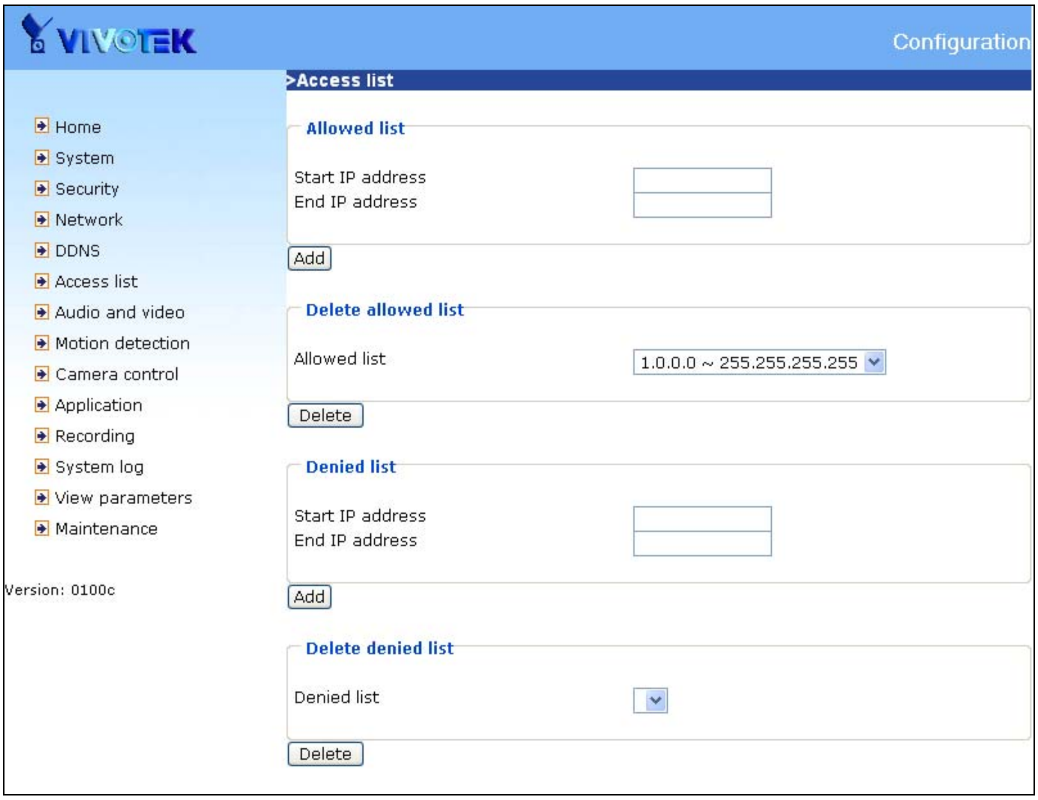
Access List

The access list is to control the access permission of clients by checking the client IP address.

There are two lists for permission control: **Allowed List** and **Denied List**. Only those clients whose IP address is in the **Allowed List** and not in the **Denied List** can connect to the Video Server or Network Camera for receiving the audio/video streaming.

Both **Allowed List** and **Denied List** consist of a list of IP ranges. If you want to add a new IP address range, type the **Start IP Address** and **End IP Address** in the text boxes and click on the **Add** button. If you want to remove an existing IP address range, just select from the pull-down menu and click on the **Delete** button.

Both the Allowed List and Denied List can have 10 entries.



<url> http://<Network Camera>/setup/accesslist.html

<Network Camera> is the domain name or original IP address of the Network Camera.

Audio and Video

This product supports dual-stream. It provides two setting for video streams, but only one setting for audio.

Video Settings

"Video title" The text string can be displayed on video
"Color" Select either for color or monochrome video display.
"Power line frequency", the fluorescent light will flash according to the power line frequency that depends on local utility. Change the frequency setting to eliminate uncomfortable flash image when the light source is only fluorescent light.

Video orientation

"Flip" Vertically rotate the video.
"Mirror" Horizontally rotate the video. Check options both if the Network Camera is installed upside down.

"White balance" Adjust the value for best color temperature.
"Overlay title and time stamp on video" Check it the title is shown on video.
There are different video quality settings for stream1 and stream2.
"Mode" It can be MPEG-4 or JPEG. If MPEG-4 is selected, it is streamed in RTSP protocol. If JPEG is selected, it is streamed in server push mode.
"Frame Size" If the mode is MPEG-4, there are four options, **"176x144", "320x240"** and **"640x480"**. If the mode is JPEG, there are five options, **"176x144", "320x240"** and **"640x480".**

There are three dependent parameters provided in MPEG-4 mode for video performance adjustment.
"Intra frame period" The interval of intra frame.
"Maximum frame rate" This limits the maximal refresh frame rate, which can be combined with the **"Video quality"** to optimize bandwidth utilization and video quality.

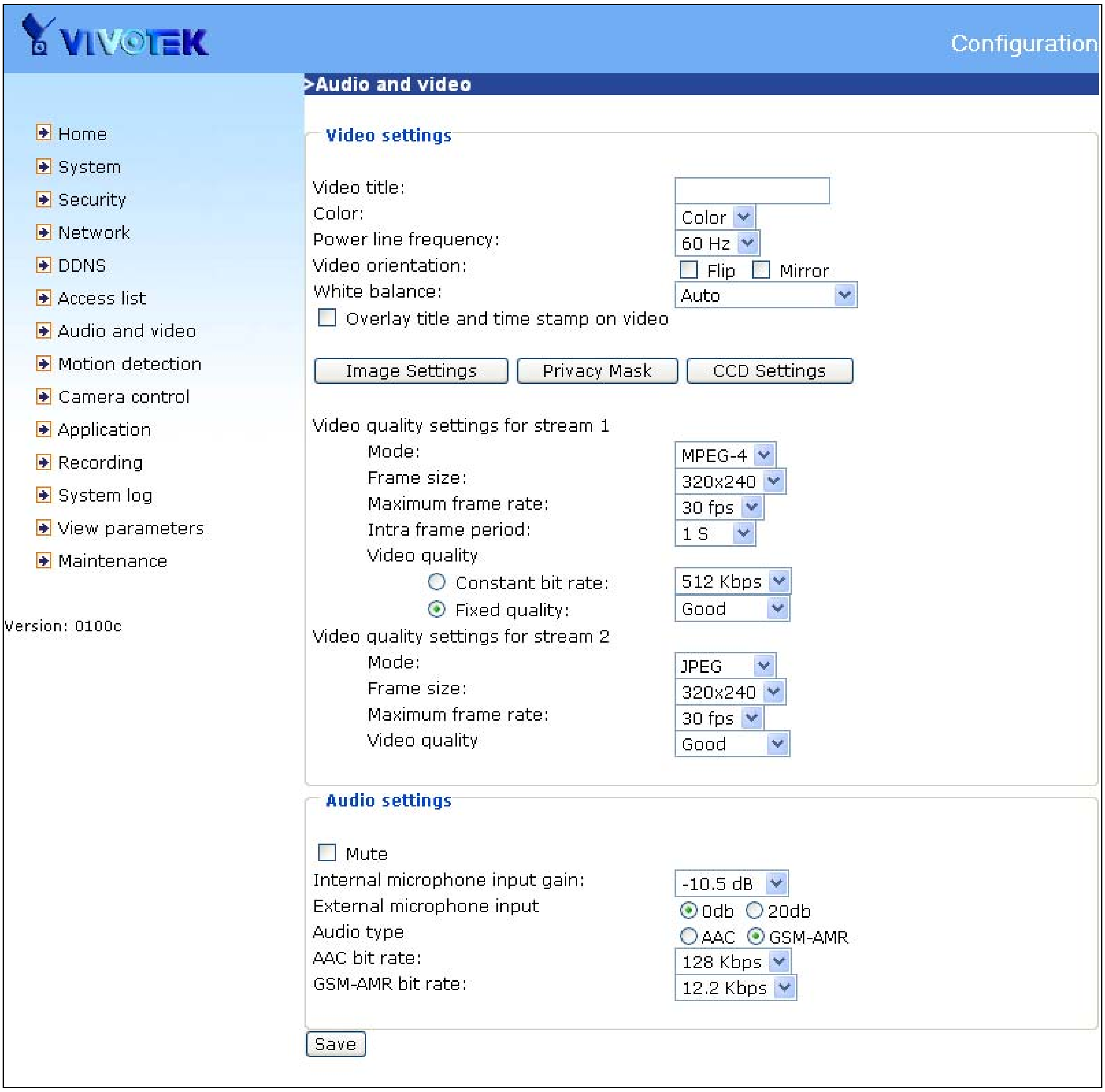
www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Choose "**Constant bit rate**" If the user wants to fix the bandwidth utilization regardless of the video quality, choose **"Fixed quality"** and select the desired bandwidth. The video quality may be poor due to the sending of maximal frame rate within the limited bandwidth when images are moving rapidly. Consequently, to ensure detailed video quality (quantization rate) regardless of the network, it will utilize more bandwidth to send the maximal frames when images change drastically.
In JPEG mode, user can set **"Maximum frame rate"** and **"Video quality"** to adjust the video performance.

Audio settings

"Mute" To turn off audio
"Internal microphone input gain" Modify the gain of the internal audio input
"External microphone input" There are two gain options, 0dB and 20dB.
"Audio type" Select audio codec **"AAC"** or **"GSM-AMR"** and the bit rate

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532



<url> *http://<Network Camera>/setup/audiovideo.htm*

<Network Camera> is the domain name or original IP address of the Network Camera.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Image Settings

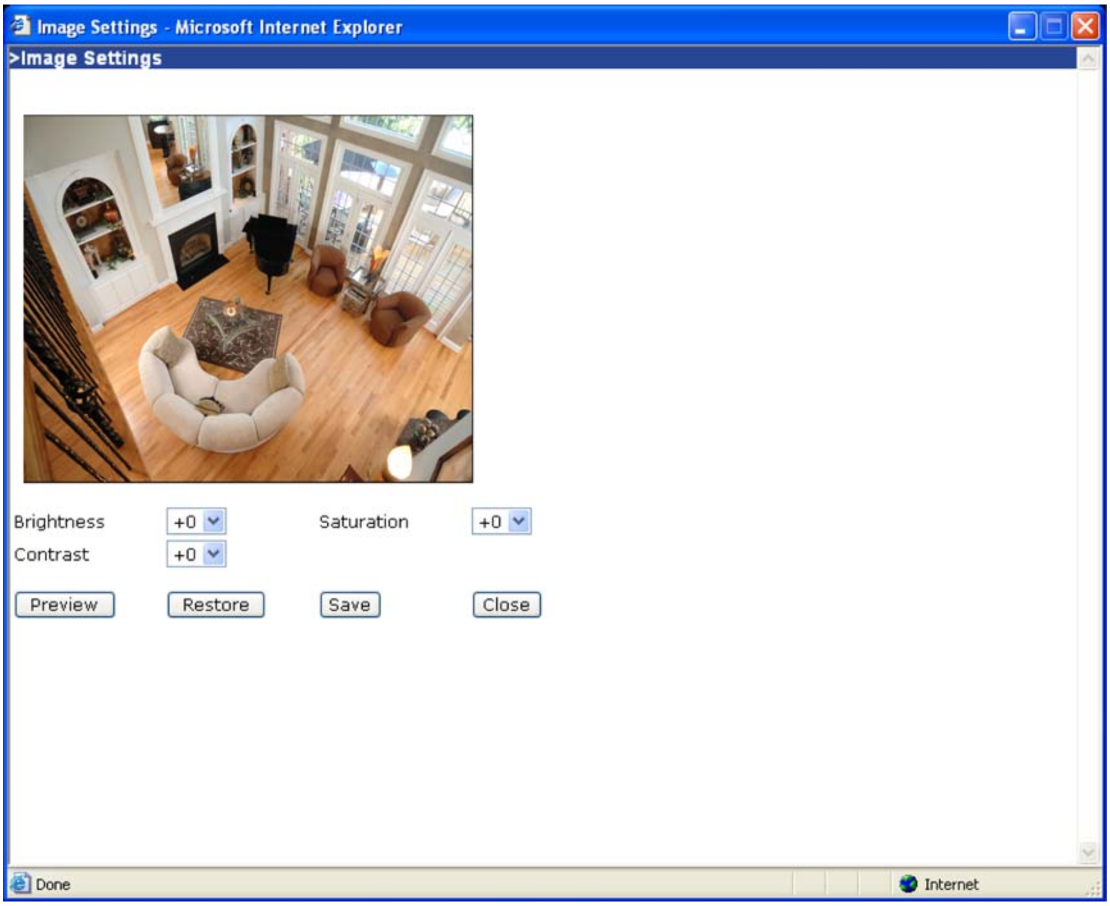
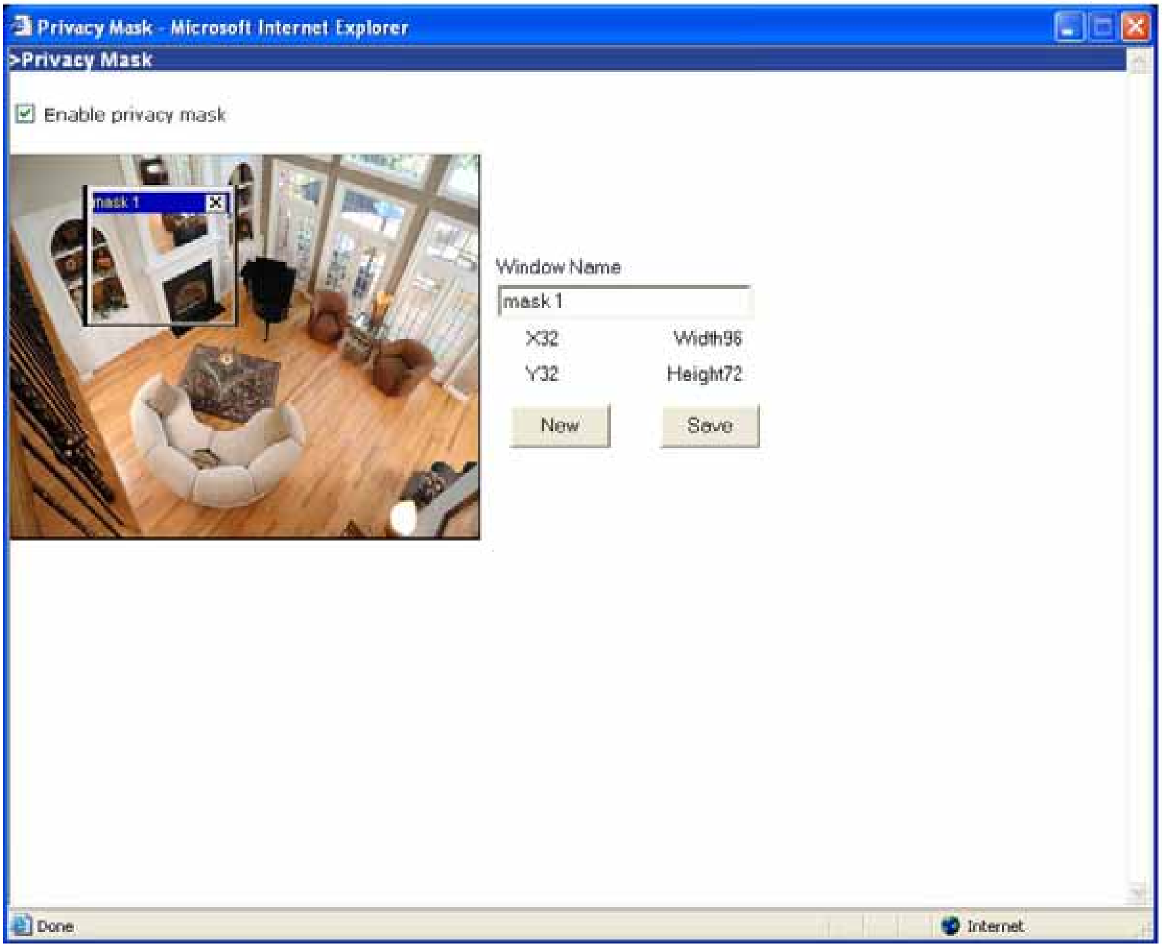


Image settings Click on this button to pop up another window to tune **"Brightness"**, **"Contrast"** and **"Saturation"** for video compensation. Each field has eleven levels ranged from -5 to +5. In **"Brightness"** and **"Contrast"** fields the value 0 indicates auto tuning. The user may press Preview to fine-tune the image. When the image is O.K; press Save to set the image settings. Restore Click on this to recall the original settings without incorporating the changes.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Privacy Mask



Click on the button to pop up another window to set privacy mask window. All users can not view the block under privacy mask window.

"Enable privacy mask" Check this option to turn on privacy mask.



Click on this button to add a new window. At most five windows can exist simultaneously. Use the mouse to click, hold, and drag the window frame to resize or the title bar to move. Click on the 'x' at the upper right-hand corner of the window to delete the window. Remember to save in order to validate the changes. The base of window axis is eight. You can see the X, Y, width and height of the window.

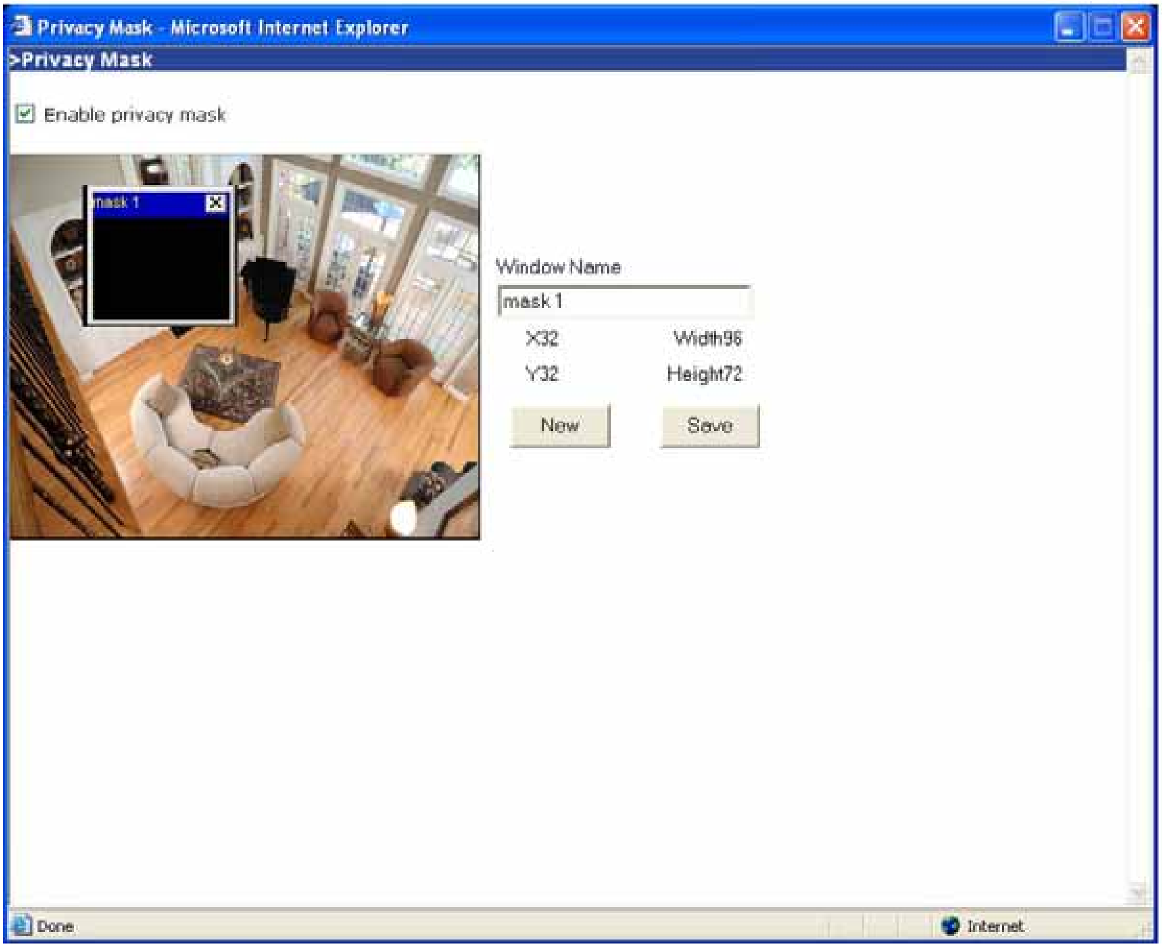


Click on this button to save the related window settings.

"Window Name" The text will show at the top of the window.

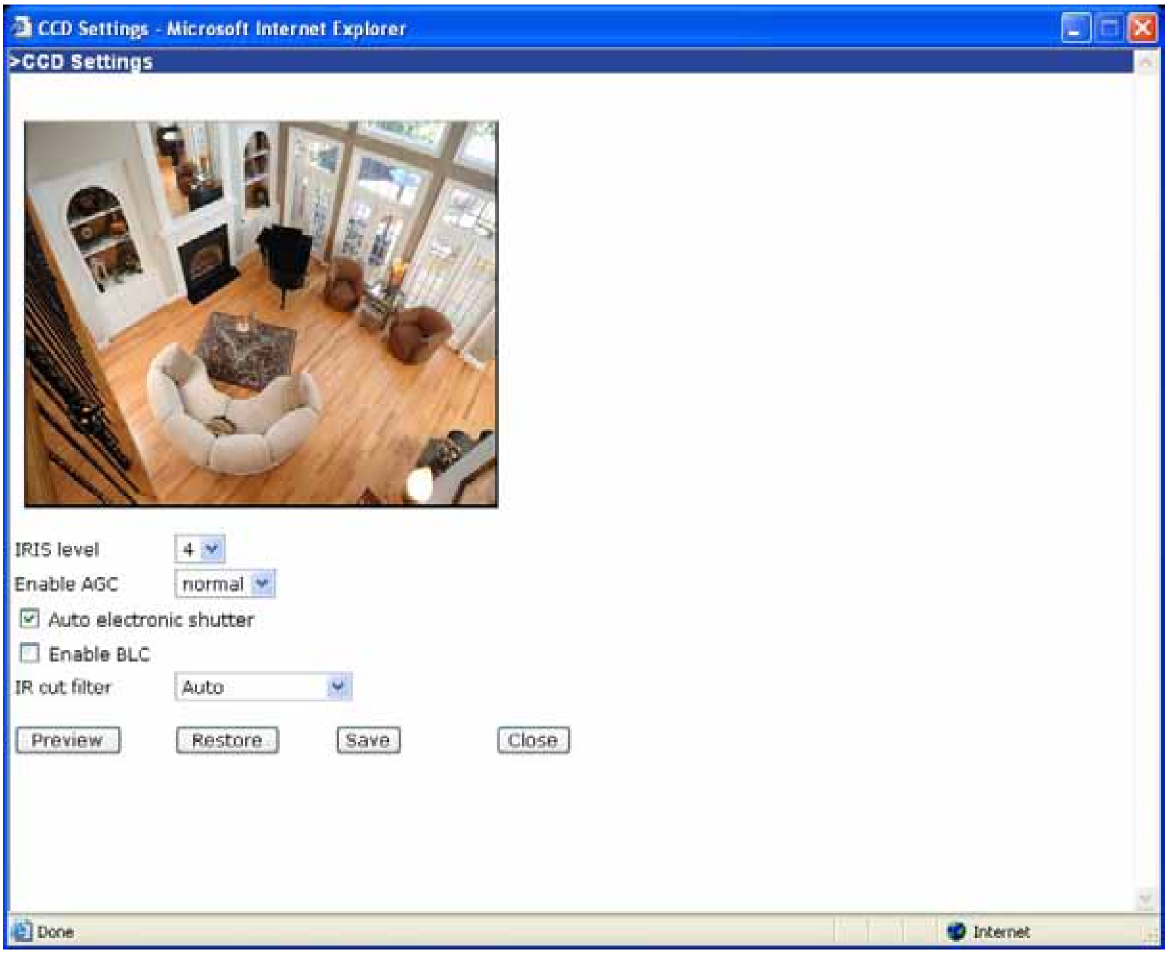
www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

The following figure shows the screen when Save is clicked and the privacy mask is enabled.



www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

CCD Settings



Click on "CCD Settings" button, the CCD settings window will pop up.

"IRIS level" let users to adjust the aperture size of your auto iris lens.

"AGC" - automatic gain control, enable this to do MAX AGC, otherwise NORMAL AGC is done.

"AES" - auto electronic shutter, enable this will let CCD sensor adjust electronic shutter automatically. Disable this when auto iris lens is attached.

"BLC" - back light compensation, enable this will help to identify objects in front of light source.

"IR cut filter" - When set to "Night mode", the camera will be able to "see" infrared light, it increases light sensitivity. Set to "Auto" to automatically turn the filter off when the available visible light falls below the minimum requirement. In "Schedule mode",

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

you can decide when to switch between "Day mode" and "Night mode" automatically. The user may press Preview to fine-tune the image. When the image is O.K; press Save to set the CCD settings. Restore Click on this to recall the original settings without incorporating the changes.

Motion detection

"Enable motion detection" Check this option to turn on motion detection.

New Click on this button to add a new window. At most three windows can exist simultaneously. Use the mouse to click, hold, and drag the window frame to resize or the title bar to move. Click on the 'x' at the upper right-hand corner of the window to delete the window. Remember to save in order to validate the changes.

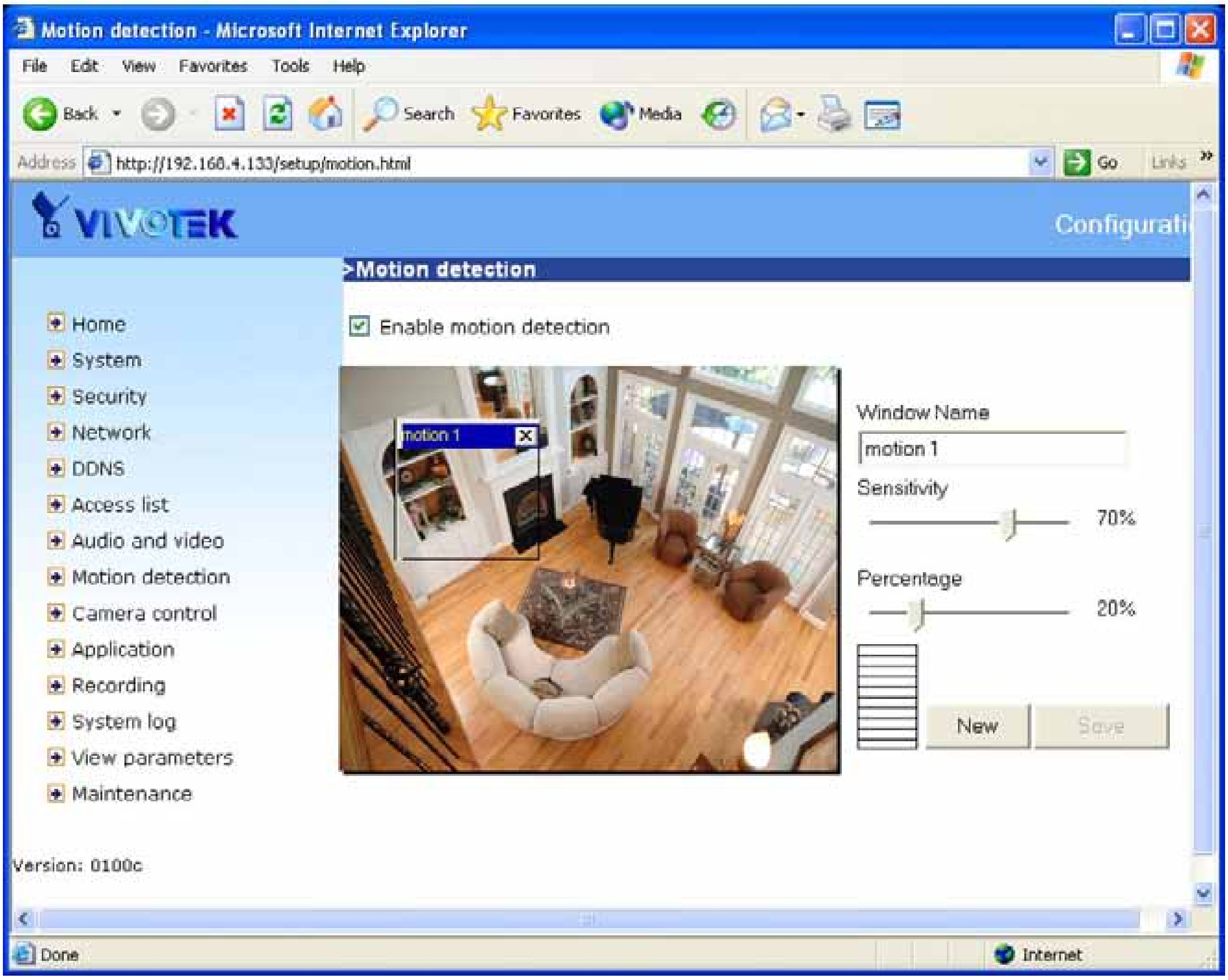
Save Click on this button to save the related window settings. A graphic bar will rise or fall depending on the image variation. A green bar means the image variation is under monitoring level and a red bar means the image variation is over monitoring level. When the bar goes red, the detected window will also be outlined in red. Going back to the homepage, the monitored window is hidden but the red frame shows when motion is detected.

"Window Name" The text will show at the top of the window.

"Sensitivity" This sets the endurable difference between two sequential images.

"Percentage" This sets the space ratio of moving objects in the monitoring window. Higher sensitivity and small percentage will allow easier motion detection.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

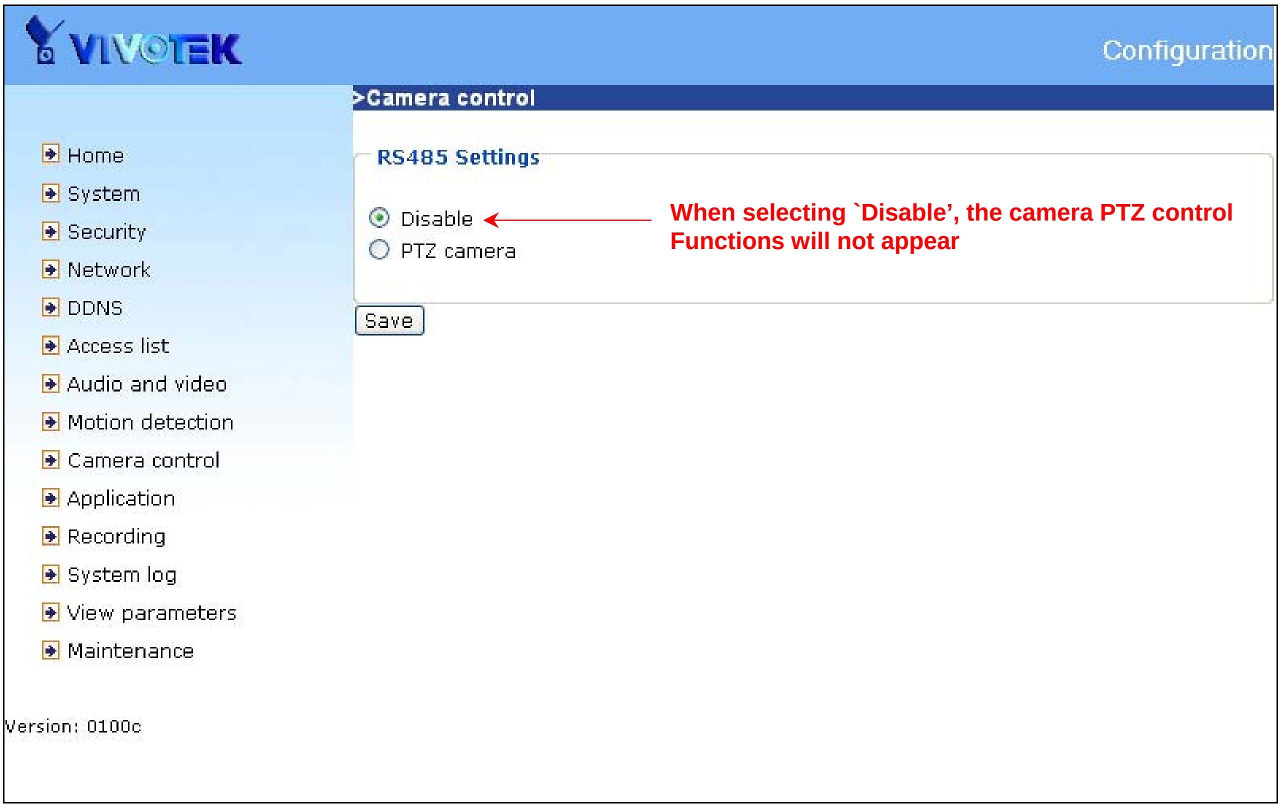


<url> *http://<Network Camera>/setup/motion.htm*

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

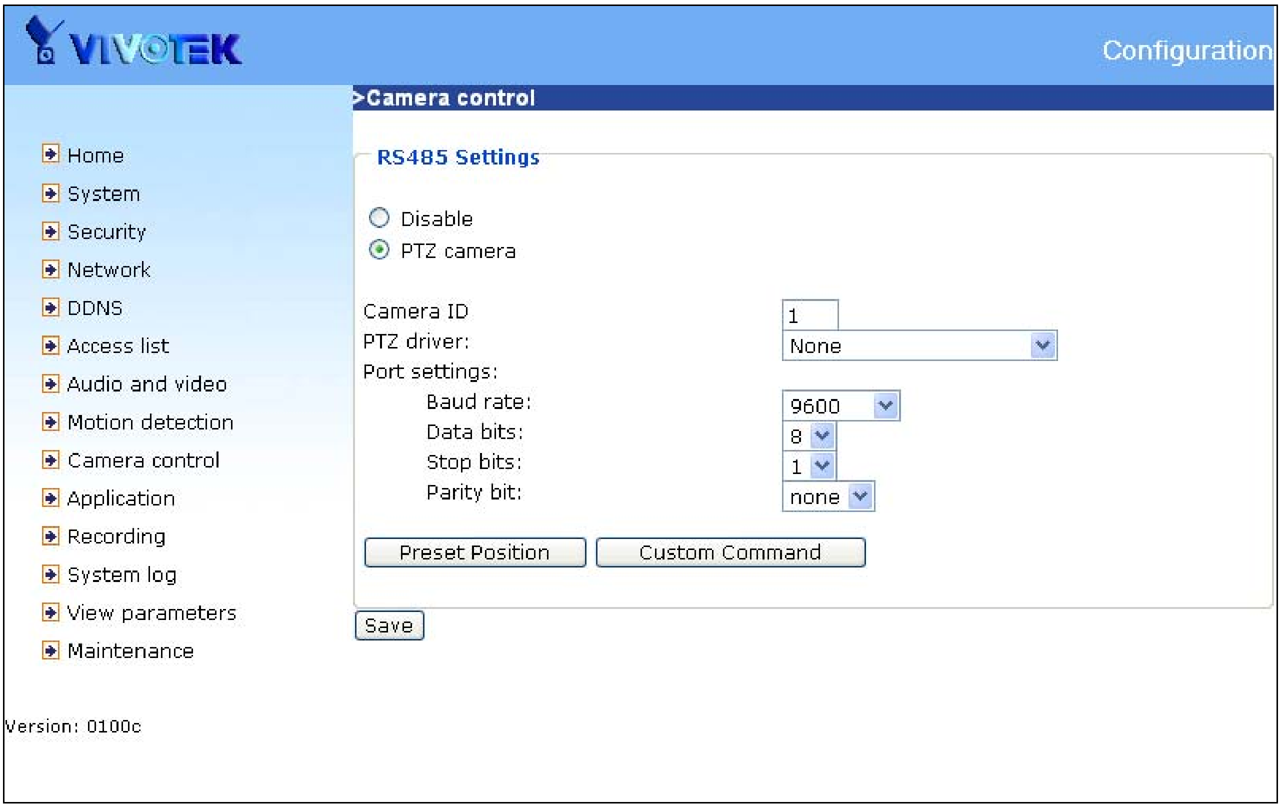
Camera control

In camera control page, if user configures "**RS485 Settings"** as **"Disable"**, it means the camera is fixed or doesn't support Pan/Tilt/Zoom features. If user selects **"RS485 Settings"** as **"PTZ camera"**, the camera control setting functions will be enabled and the control panel will appear on permitted users' main page. Users can configure their PTZ camera driver and control their camera in pan and tilt direction as well as zoom and focus. Please refer to the section **"Main Screen with Camera View"** for the layout in IE when pan, tilt, zoom, and focus functions are enabled.

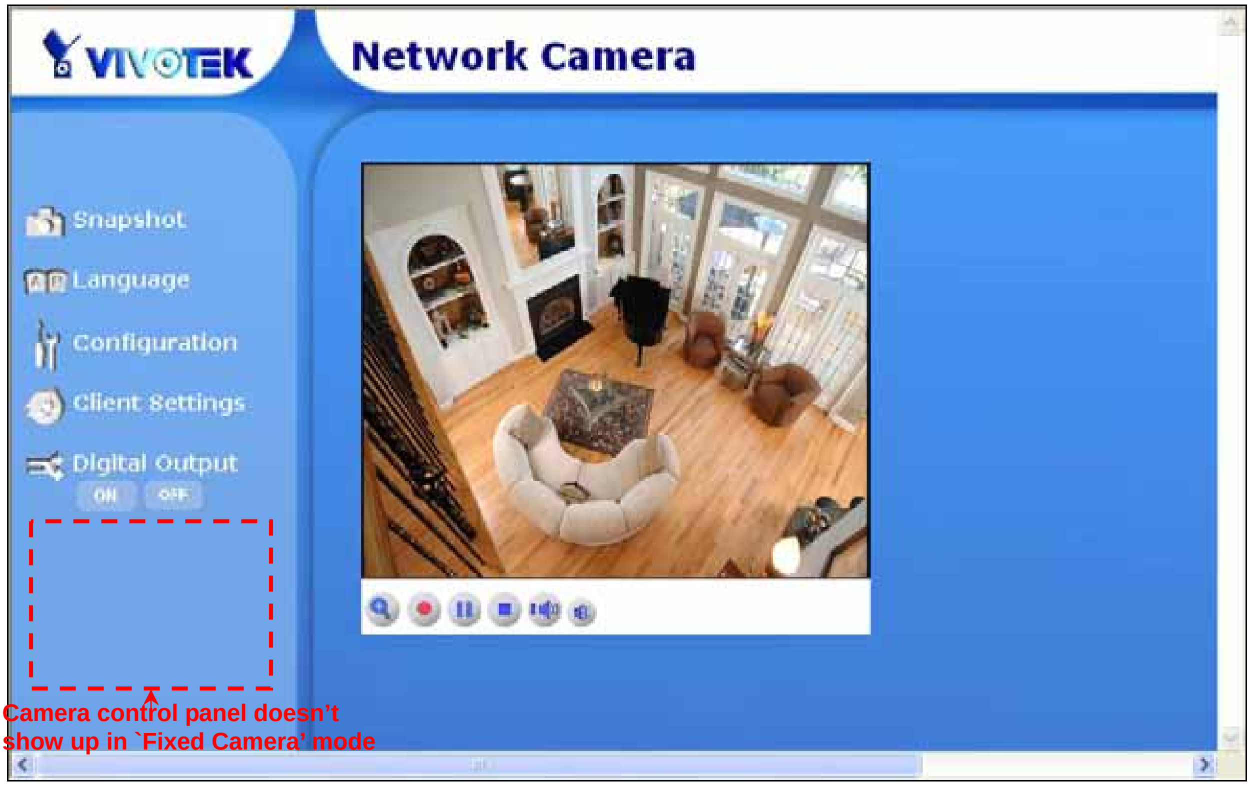


www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

The figure below is the layout when **"PTZ camera"** is checked. Users can configure the camera driver and RS485 port settings.



www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

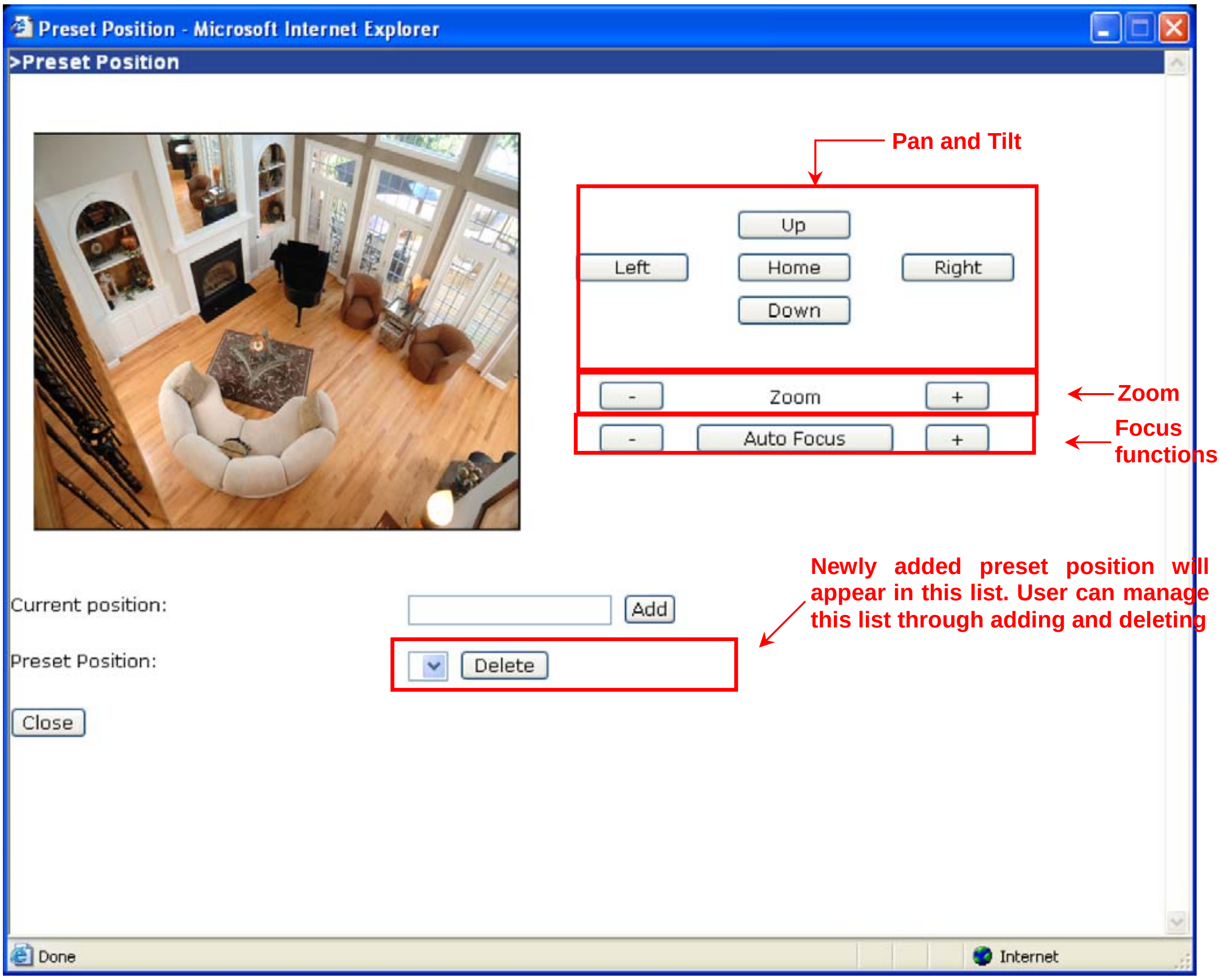


If there is any PTZ camera attached, users should select the **"RS485 Settings"** as **"PTZ camera"**. Users have to configure the camera id, PTZ driver, and ports settings correctly. The ID is specific to the camera and necessary for multiple camera control. Please refer to the PTZ camera's user manual for ID settings. The network camera has three built-in PTZ camera drivers, including DynaDome/SmartDOME, Lilin PIH-7x00, and Pelco D protocol. For user's convenience, users can upload their alternative PTZ driver to the Video Server. Please refer to the maintenance page for more information about how to upload your PTZ driver file.

Note that the Network Camera can support multiple protocols to PTZ cameras. If there are PTZ camera functions can't work, please see your PTZ camera's user manual to check if your camera supports these functions.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

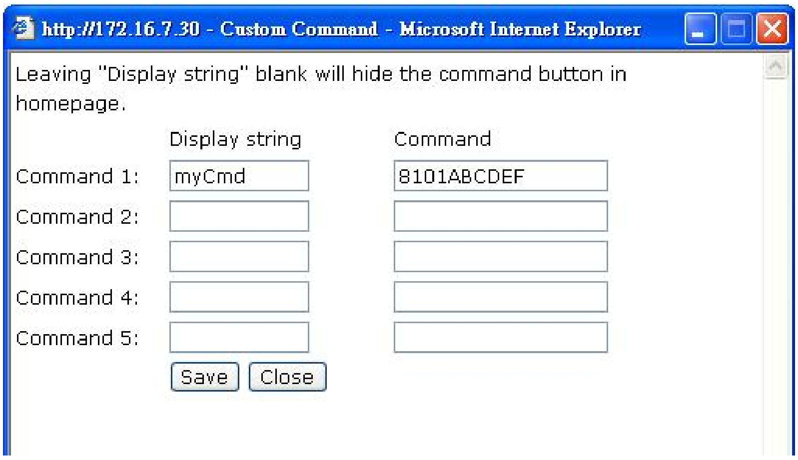
Preset position



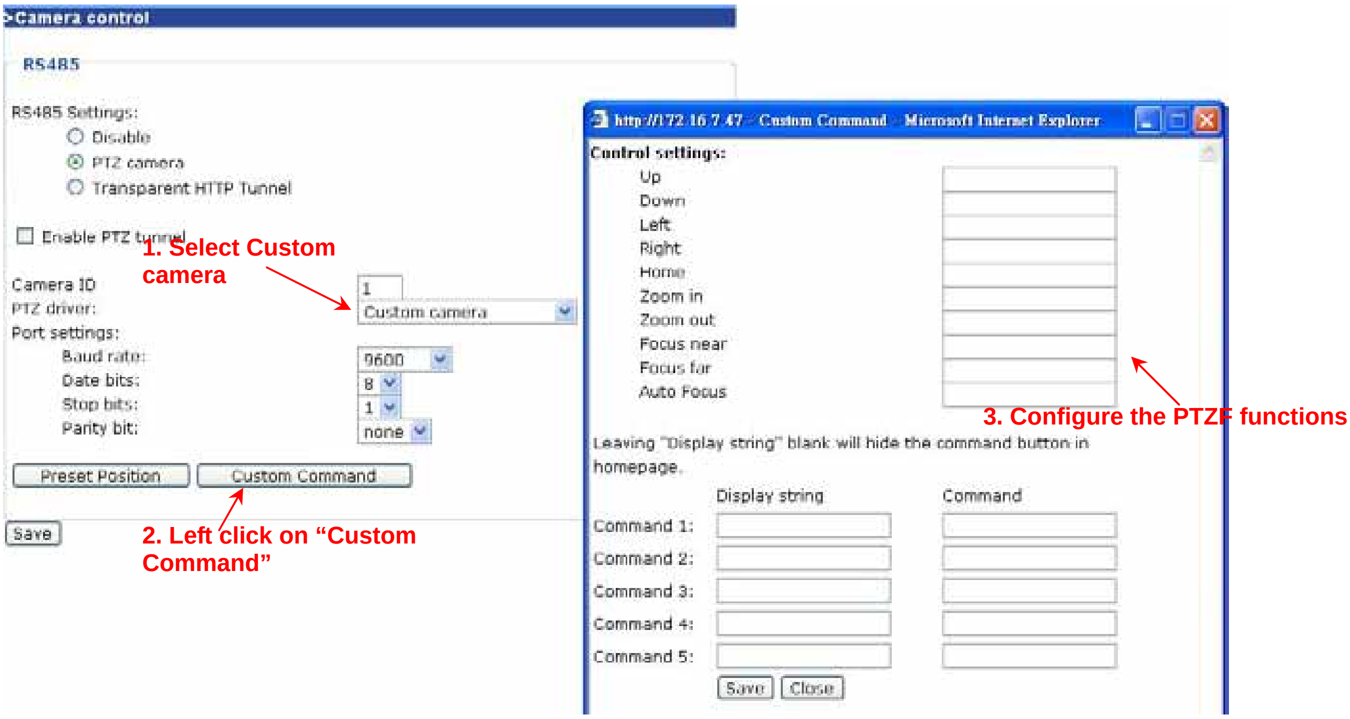
Users can define a list of preset locations up to 20 through pan/tilt functions and zoom/focus functions. After setting up a preset location, users should give it a proper name, and those pre-defined locations will save into the preset location list and also show up in the homepage. In homepage, users can pull down the list of preset locations to choose any one to move the camera to the preset location that is defined. The network camera provides up to twenty preset locations for users.

Custom command

The network camera provides five more custom commands other than general pan, tilt, zoom and preset functions. Users can click on **"Custom commands"** and refer to the instruction manual of the attached device to setup frequently used functions.



Please note that if "Custom camera" is selected as PTZ driver, user must configure the custom pan, tilt, zoom, and focus functions via "Custom Command" page.



www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Application

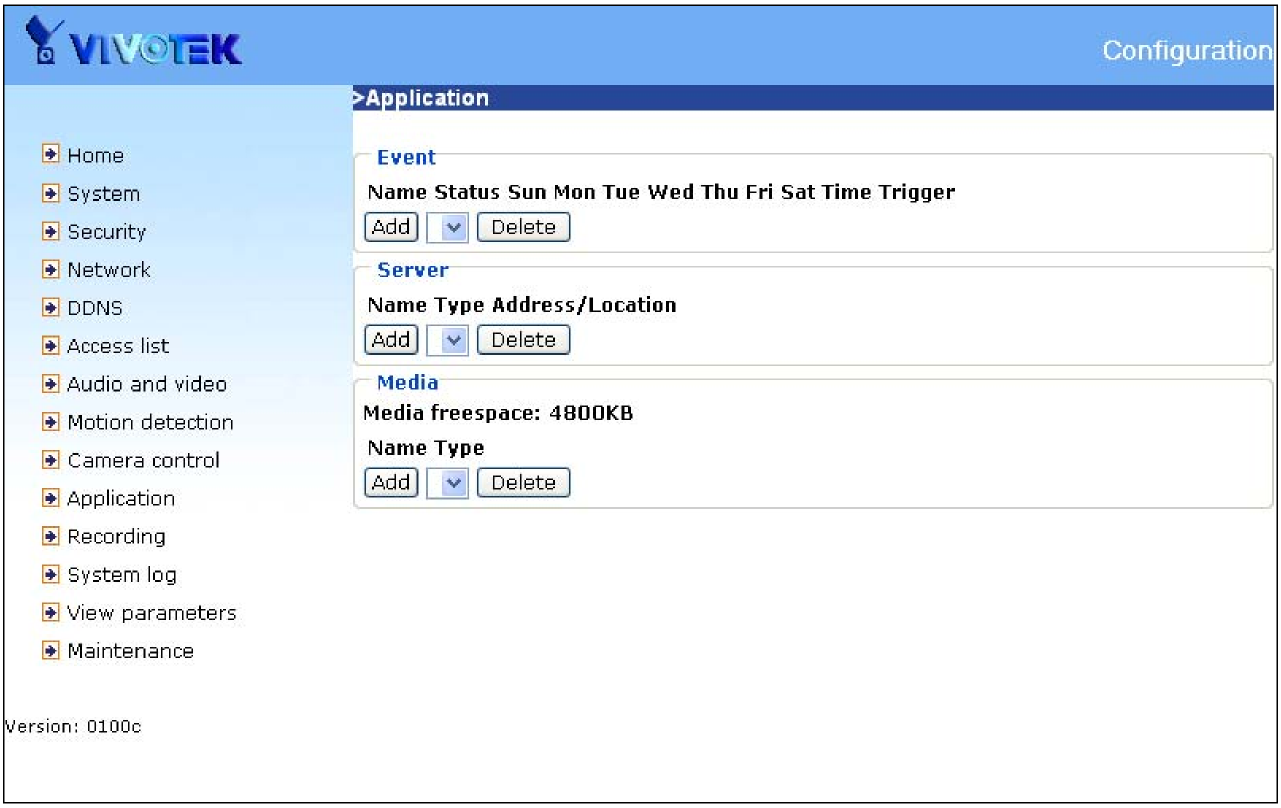
There are three sections in application page. They are event, server and media. Click Add to pop a window to add a new item of event, server or media. Click Delete to delete the selected item from event, server or media. Click on the item name to pop a window to edit it.

There can be at most three events. There can be at most five server and five media configurations.

User can know the event name, status, weekly and time schedule and trigger type in event section. The server name, type and address/location are shown in server section. The current media free space, media name and type are shown in media section. After adding a new media, the value of free space will be updated. User cannot add media which size is larger than free space.

It is suggested to set server and media first before setting event. The servers and media selected in event list are not modified or deleted. Please remove them first from the event if you want to delete or modify them. Recommend that using different media in different event to make use all media be produced and received correctly. If using the same media in different events and the events trigger almost simultaneously, the servers in the second triggered event will not receive any media; there would be only notifications.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532



<url> *http://<Network Camera>/setup/application.htm*

<Network Camera> is the domain name or original IP address of the Network Camera.

Event

"Event name" The unique name for event

"Enable this event" Check it to enable this event.

"Priority" The event with higher priority will be executed first.

"Delay second(s) before detecting next event" The delay to check next event. It is used in motion detection and digital input trigger type.

There are four kinds of trigger supported.

"Video motion detection" Select the windows which need to be monitored.

"Periodic" The event is triggered in specified intervals. The unit of trigger interval is minute.

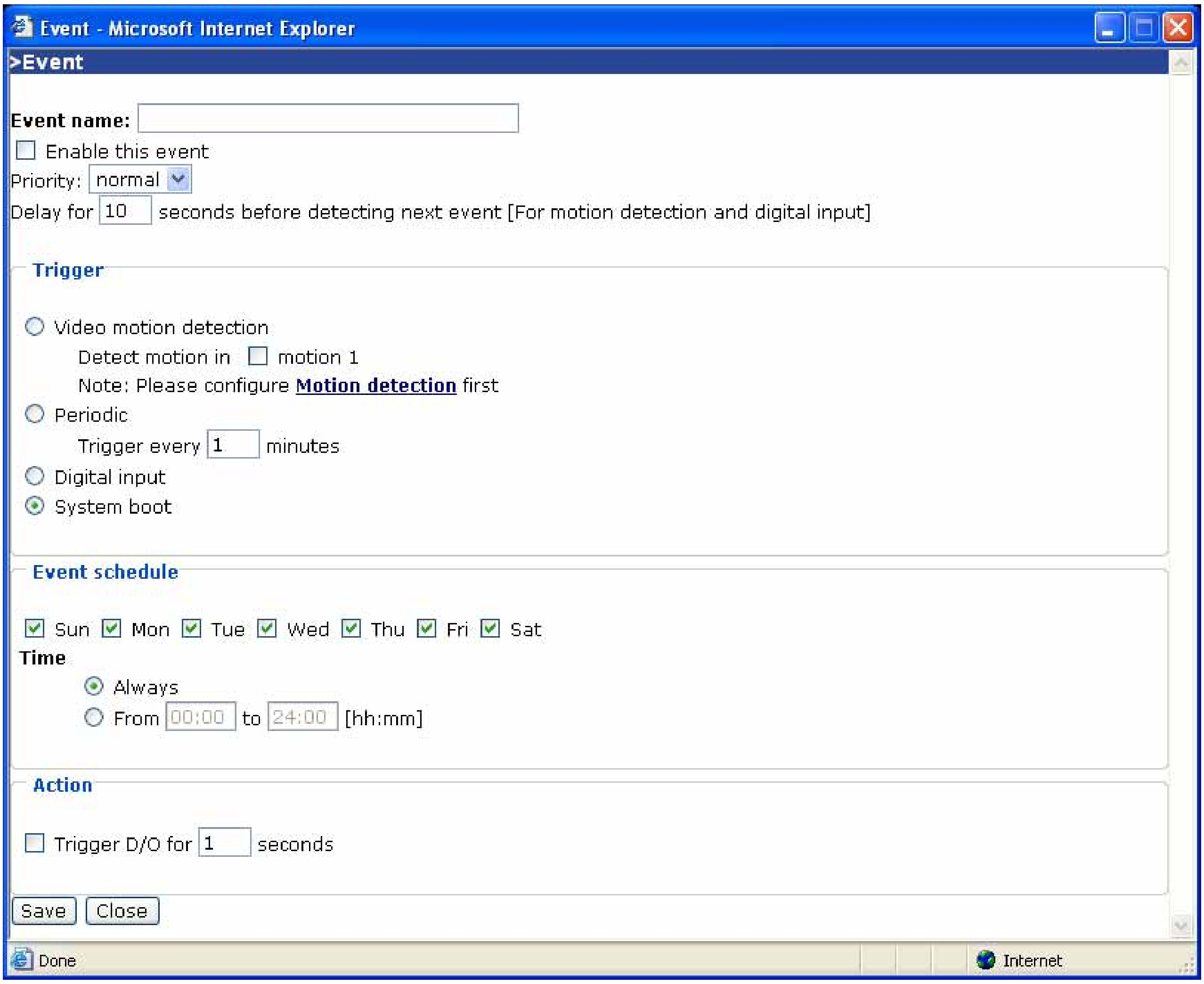
"Digital input" To monitor digital input

"System boot" The event is triggered when the system bootup.

The weekly and time schedules are provided.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

"Sun" ~ "Sat" Select the days of the week to perform the event.
"Time" show **"Always"** or input the time interval.
If there are servers configured, the user can select them from **"Server name"**, too.
"Trigger DO" Check it to trigger digital output for specific seconds when event is triggered.
"Server name" Check it to sending the selected media when event is triggered.



Server

"Server name" The unique name for server
There are four kinds of servers supported. They are email server, FTP server, HTTP server and network storage.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Here is setting for email server.
"Sender email address" The email address of the sender
"Recipient email address" The email address of the recipient
"Server address" The domain name or IP address of the external email server.
"User name" This granted user name on the external email server.
"Password" This granted password on the external email server.

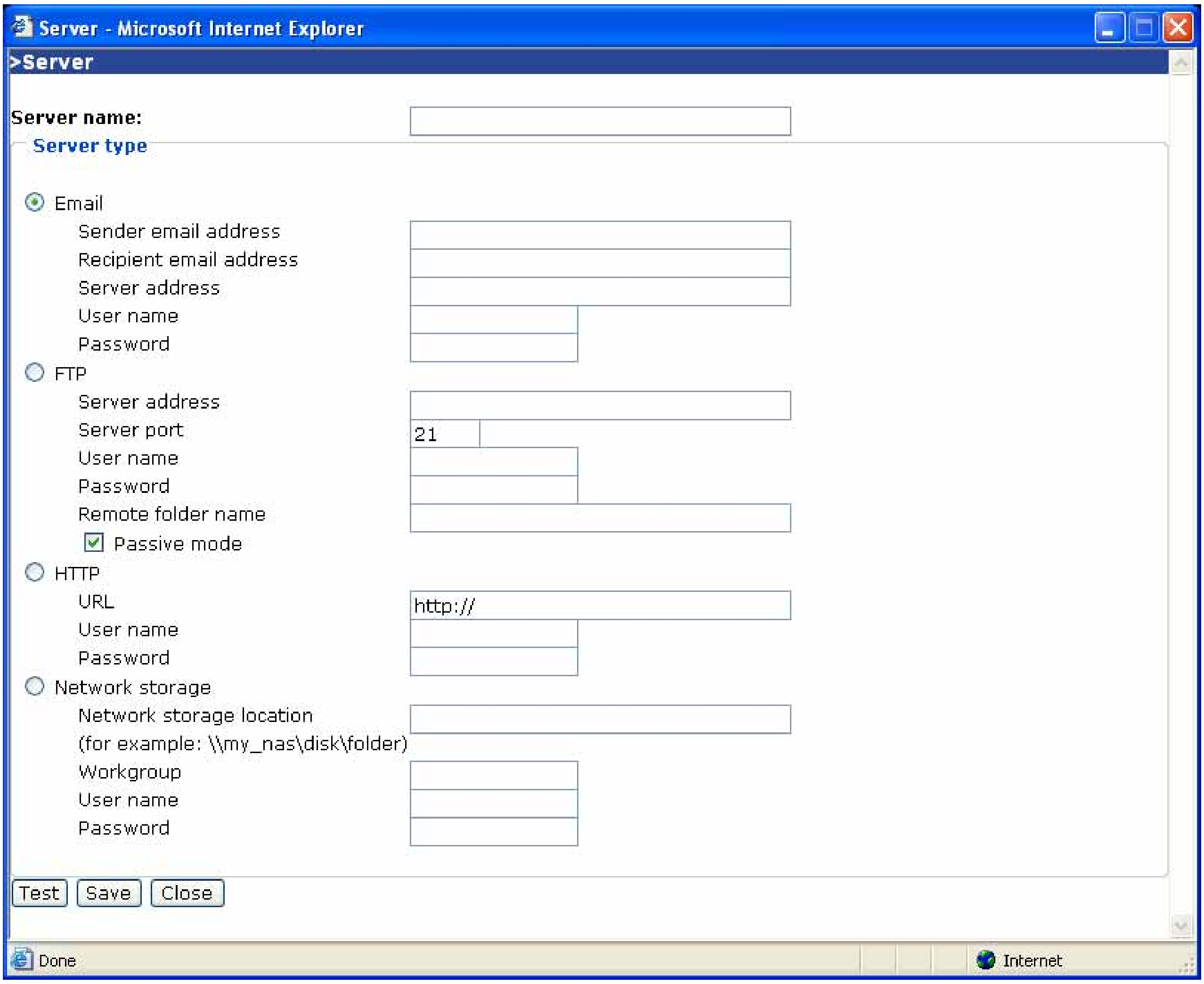
Here is setting for FTP server.
"Server address" The domain name or IP address of the external FTP server.
"Server port" This can be other than the default port 21. The user can change this value from 1025 to 65535.
"User name" This granted user name on the external FTP server.
"Password" This granted password on the external FTP server.
"Remote folder name" Granted folder on the external FTP server. The string must conform to that of the external FTP server. Some FTP servers cannot accept preceding slash symbol before the path without virtual path mapping. Refer to the instructions for the external FTP server for details. The folder privilege must be open for upload.
"Passive Mode" Check it to enable passive mode in transmission.

Here is setting for HTTP server.
"URL" The URL to upload the media.
"User name" This granted user name on the external HTTP server.
"Password" This granted password on the external HTTP server.

Here is setting for network storage. Only one network storage is supported.
"Network storage location" The path to upload the media
"Workgroup" The workgroup for network storage.
"User name" This granted user name on the network storage.
"Password" This granted password on the network storage.

After input the setting of server, user can click on [Test] to test whether the setting is correct. The testing result will be shown in a pop-up window.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532



Media

"Media name" The unique name for media

There are three kinds of media. They are snapshot, video clip and system log.

Here is setting for snapshot.

"Source" The source of stream, stream1 or stream2.

"Send Pre-event images" The number of pre-event images

"Send Post-event images" The number of post-event images

"File name prefix" The prefix name will be added on the file name of the snapshot images.

"Add date and time suffix to file name" Check it to add timing information as file

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

name suffix.

Here is setting for video clip

"Source" The source of stream, stream1 or stream2.

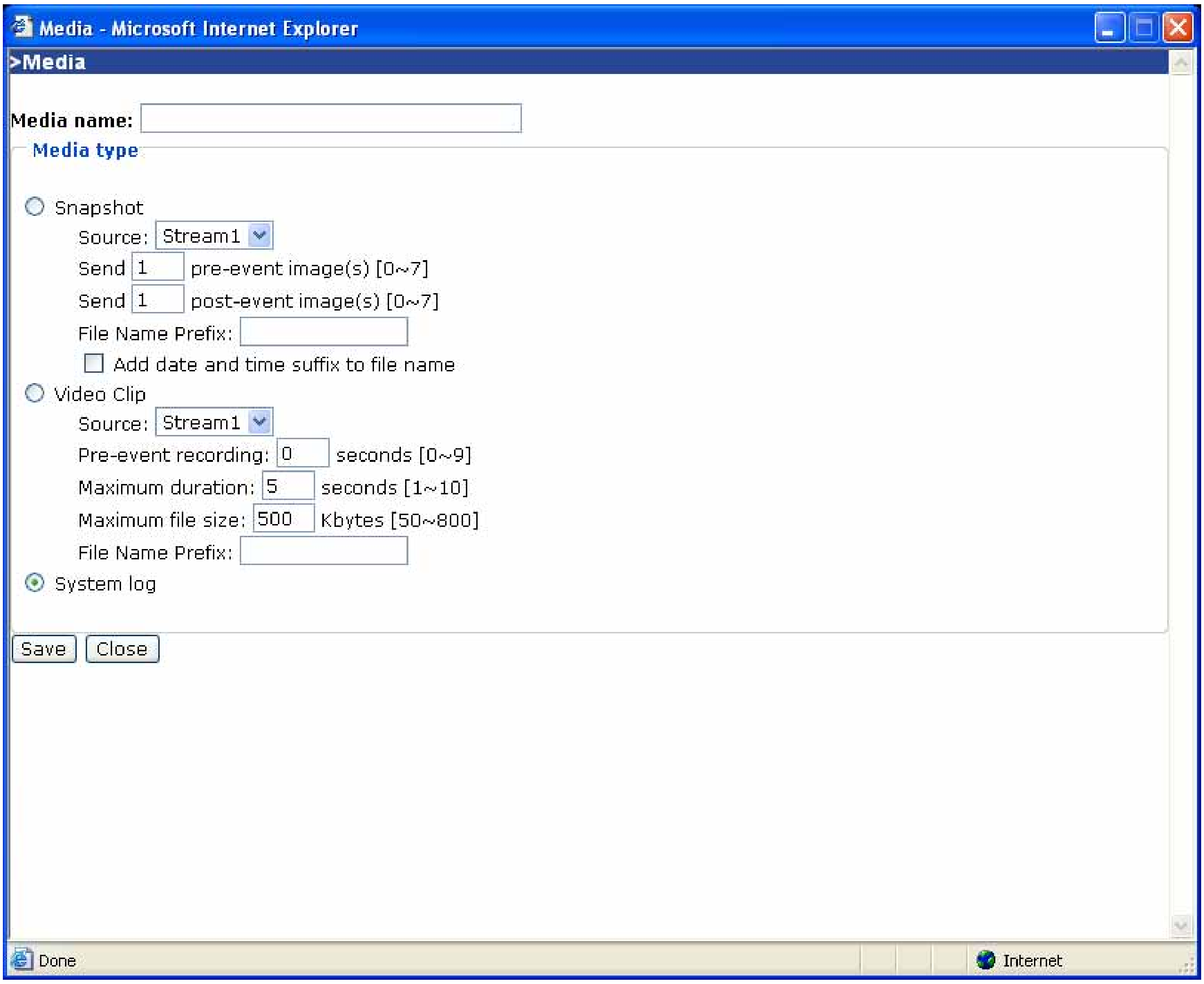
"Pre-event recording" The interval of pre-event recording in seconds

There are two limitations for video clip file.

"Maximum duration" The maximal recording file duration in seconds

"Maximum file size" The maximal file size would be generated.

"File name prefix" The prefix name will be added on the file name of the video clip.

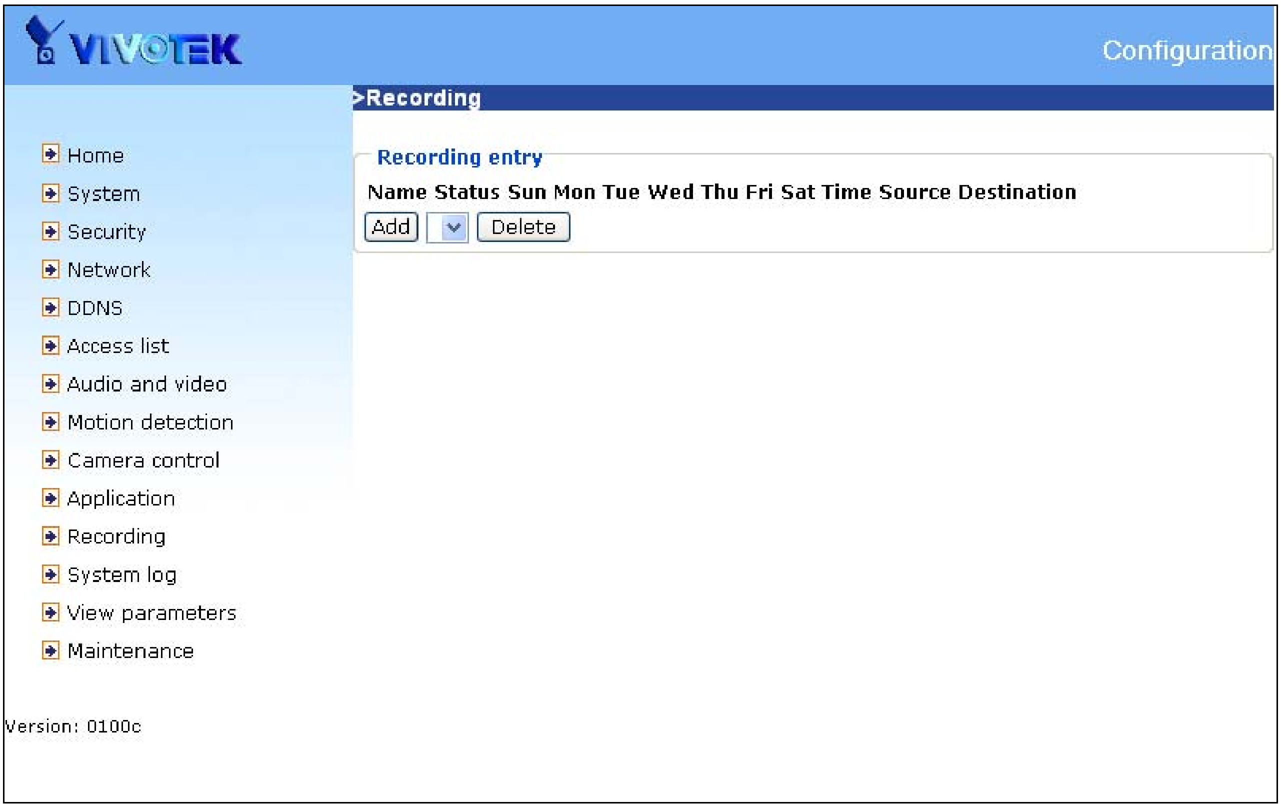


Recording

The Network camera supports recording on network storage. The operation of editing

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

recording item is the same as the one in application page. User can know the recording name, status, weekly and time schedule, stream source and destination of recording. There can be at most two recording entries. To do recording on network storage, please add network storage server in application page first.



<url> *http://<Network Camera>/setup/recording.htm*

<Network Camera> is the domain name or original IP address of the Network Camera.

"Recording entry name" The unique name for recording entry

"Enable this recording" Check it to enable this event.

"Priority" The recording with higher priority will be executed first.

"Source" The source of stream, stream1 or stream2.

The weekly and time schedules are provided.

"Sun" ~ "Sat" Select the days of the week to perform the event.

"Time" shows **"Always"** or input the time interval.

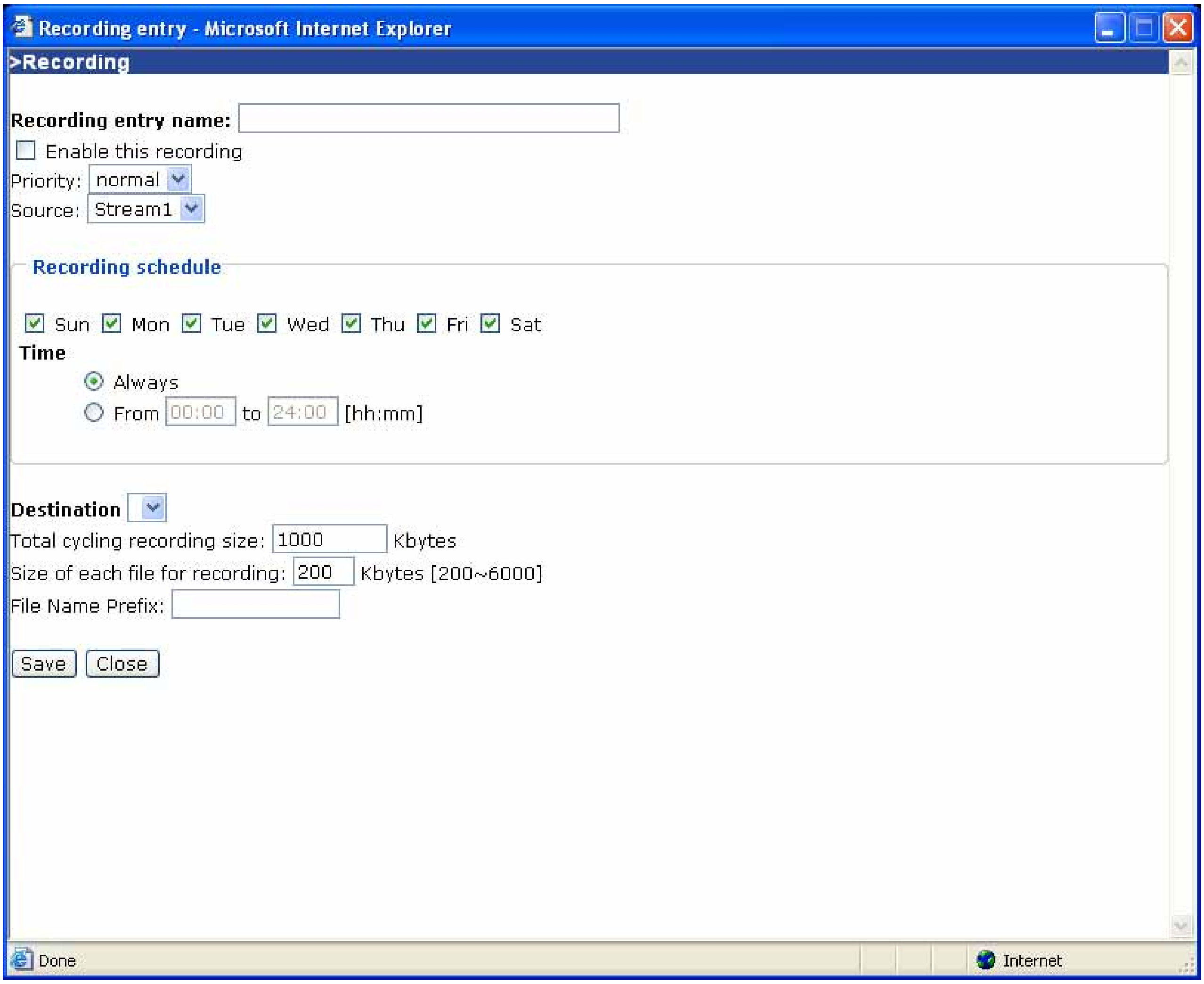
"Destination" Network storage server user added.

"Total cycle recording size" The total size for cycle recording in Kbytes

"Size of each file for recording" The single file size in Kbytes

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

"File name prefix" The prefix name will be added on the file name of the recording.



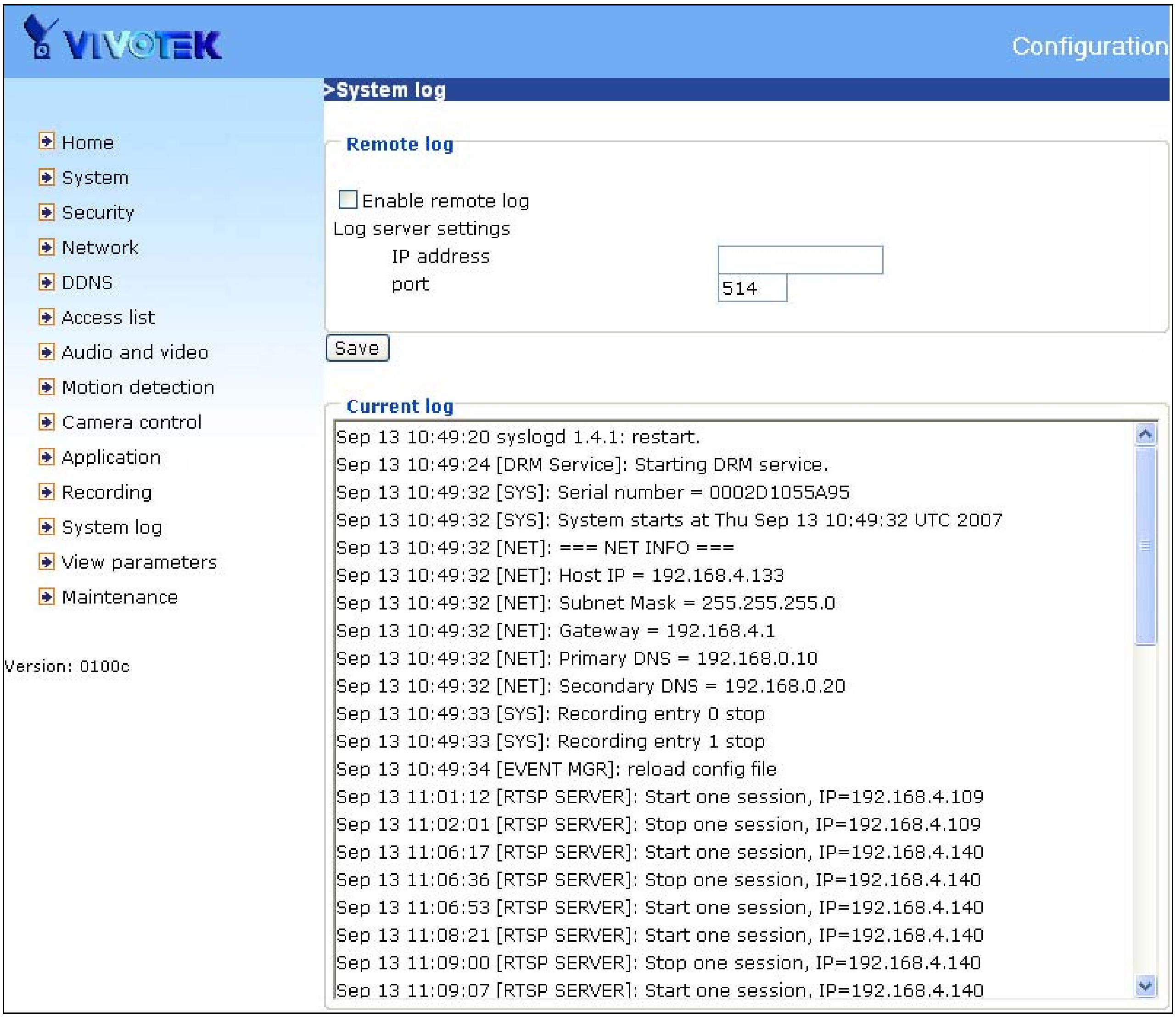
When click on the destination, a page appears listing all .mp4 files in that destination. User can select some files to delete or delete all files.

System log

The Network camera support log the system messages on remote server. The protocol is compliant to RFC 3164. If you have external Linux server with syslogd service, use "-r" option to turn on the facility for receiving log from remote machine. Or you can use some software on Windows which is compliant to RFC 3164.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

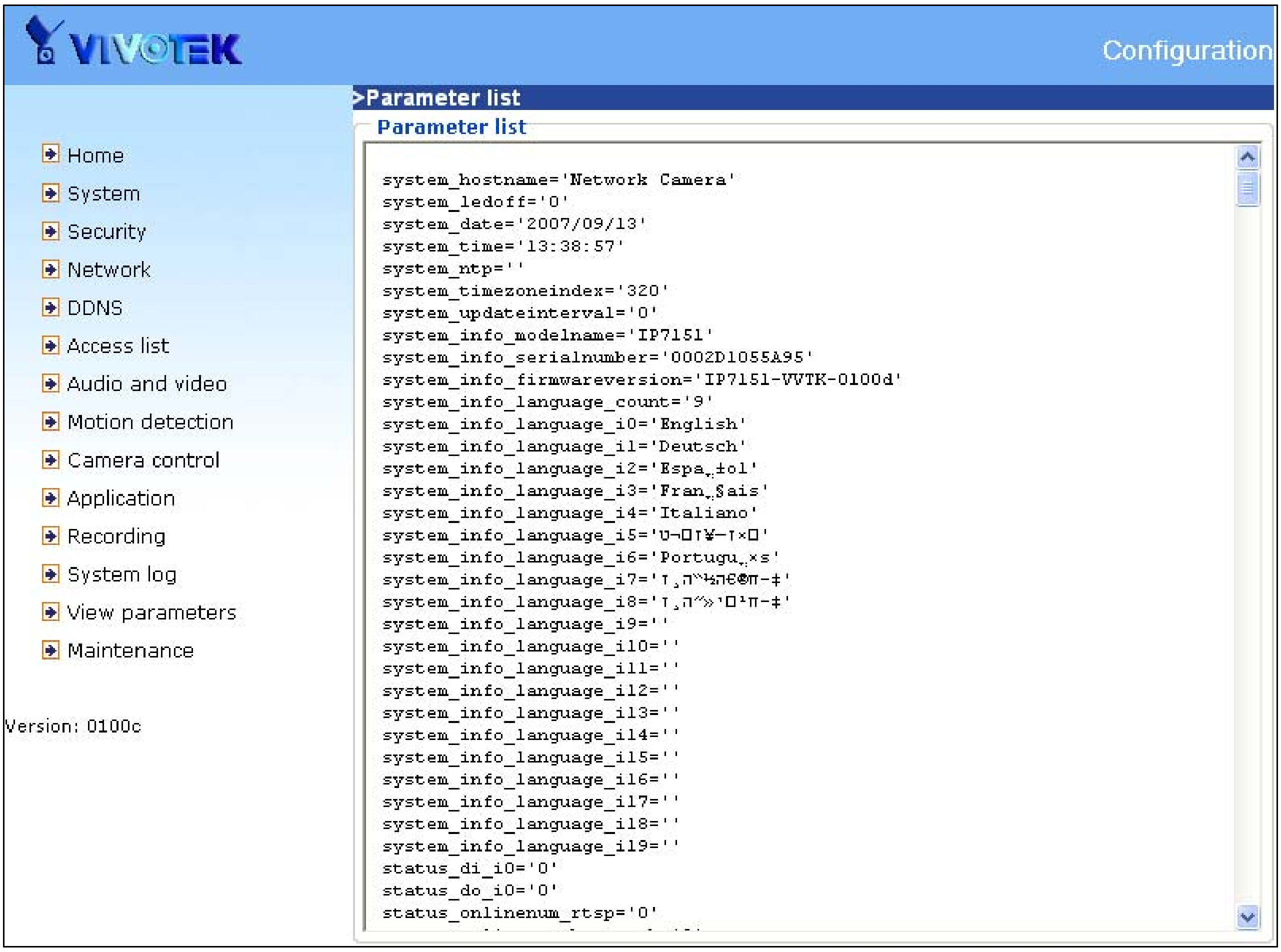
Check **“Enable remote log**” and input the **“IP address**” and **“port”** number of the log server to enable the remote log facility.
In the **“Current log”**, it displays the current system log file. The content of the log provides useful information about configuration and connection after system boot- up.



<url> *http://<Network Camera>/setup/syslog.htm*
<Network Camera> is the domain name or original IP address of the Network Camera.

Viewing system parameters

Click on this link on the configuration page to view the entire system’s parameter set.



<url> *http://<Network Camera>/setup/parafile.htm*

<Network Camera> is the domain name or original IP address of the Network Camera.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Maintenance

Five actions can be selected.

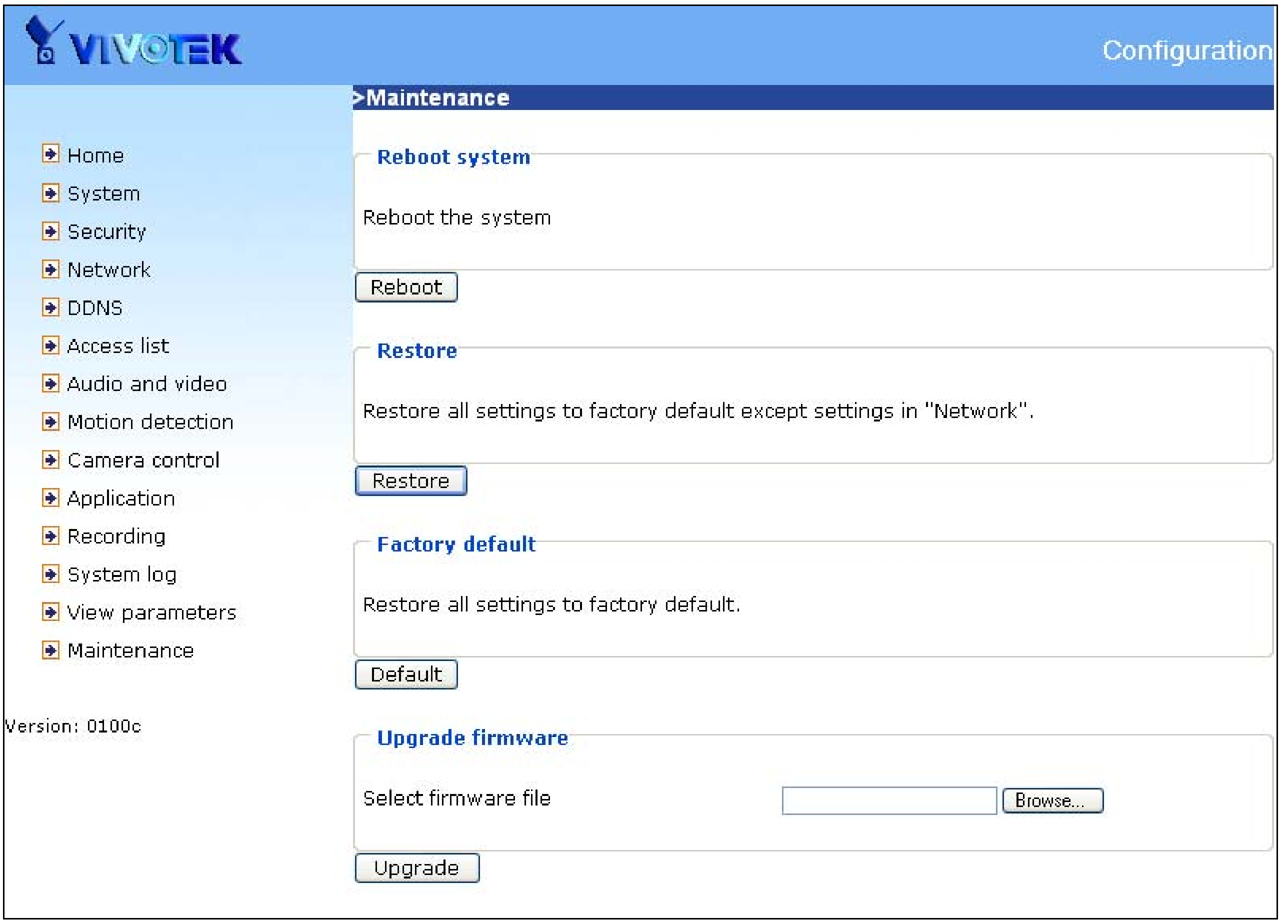
“Reboot system” Click the reboot button to restart system

“Restore” Click it to restore all setting to factory default except setting in “Network type” in network page.

“Factory default” Click on Factory default button on the configuration page to restore the factory default settings. Any changes made so far will be lost and the system will be reset to the initial factory settings. The system will restart and require the installer program to set up the network again.

“Upgrade firmware” Select the firmware file and click upgrade button

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532



<url> *http://<Network Camera>/setup/maintain.htm*

<Network Camera> is the domain name or original IP address of the Network Camera.

Appendix

A. Troubleshooting

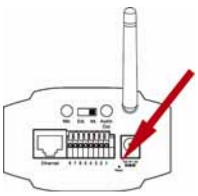
Status LED

The following table lists the LED patterns in general.

Condition	LED color
Loading system after power on	Steady green and blink red (once)
During booting procedure	Blinking red
Detecting and setting network	Steady green till IP address is confirmed
After network is setup (system up)	Blinking green every other second and steady red
During the upgrade firmware process	Blink green / orange every second and fast blink red

Reset and restore

There is a button in the back of the Network Camera. It is used to reset the system or restore the factory default settings. Sometimes resetting the system sets the system back to normal state. If the system problems remain after reset, restore the factory settings and install again.



RESET: Click on the button.

RESTORE:

1. Press on the button continuously.
2. Wait for self-diagnostic to run twice.
3. Free the button as soon as the second self-diagnostic starts.

⚠ Restoring the factory defaults will erase any previous settings. Reset or restore the system after power on.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

B. URL commands of the Network Camera

Overview

For some customers who already have their own web site or web control application, Network Camera/Video server can be easily integrated through convenient URLs. This section specifies the external HTTP based application programming interface. The HTTP based camera interface provides the functionality to request a single image, to control camera functions (PTZ, output relay etc.) and to get and set internal parameter values. The image and CGI-requests are handled by the built in Web server.

Style convention

In URL syntax and in descriptions of CGI parameters, a text within angle brackets denotes a content that is to be replaced with either a value or a string. When replacing the text string also the angle brackets shall be replaced. An example of this is the description of the name for the server, denoted with <servername> in the URL syntax description below, that is replaced with the string myserver in the URL syntax example, also below.
URL syntax' are written with the “**Syntax:**" word written in bold face followed by a box with the referred syntax as seen below. The name of the server is written as <servername>. This is intended to be replaced with the name of the actual server. This can either be a name, e.g., "mywebcam" or "thecam.adomain.net" or the associated IP number for the server, e.g., 192.168.0.220.
Special note will be marked as RED words to take care.

Syntax:

http://*<servername>*/cgi-bin/viewer/video.jpg

Description of returned data is written with "**Return:**" in bold face followed by the

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

returned data in a box. All data returned as HTTP formatted, i.e., starting with the string HTTP is line separated with a Carriage Return and Line Feed (CRLF) printed as \r\n.

Return:

```
HTTP/1.0 <HTTP code> <HTTP text>\r\n
```

URL syntax examples are written with "**Example:**" in bold face followed by a short description and a light grey box with the example.

Example: request a single snapshot image

```
http://mywebserver/cgi-bin/viewer/video.jpg
```

General CGI URL syntax and parameters

CGI parameters are written in lower-case and as one word without any underscores or other separators. When the CGI request includes internal camera parameters, the internal parameters must be written exactly as they are named in the camera or video server. The CGIs are organized in function related directories under the cgi-bin directory. The file extension of the CGI is required.

Syntax:

```
http://<servername>/cgi-bin/<subdir>[/<subdir>...]/<cgi>.<ext>
[?<parameter>=<value>[&<parameter>=<value>...]]
```

Example: Setting digital output #1 to active

```
http://mywebserver/cgi-bin/dido/setdo.cgi?do1=1
```

Security level

SECURITY LEVEL	SUB-DIRECTORY	DESCRIPTION
0	anonymous	Unprotected.
1 [view]	anonymous, viewer, dido, camctrl	1. Can view, listen, talk to camera 2. Can control dido, ptz of camera
4 [operator]	anonymous, viewer,	Operator's access right can modify most of

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

	dido, camctrl, operator	camera's parameters except some privilege and network options
6 [admin]	anonymous, viewer, dido, camctrl, operator, admin	Administrator's access right can fully control the camera's operation.
7	N/A	Internal parameters. Unable to be changed by any external interface.

Get server parameter values

Note: The access right depends on the URL directory.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/anonymous/getparam.cgi?[<parameter>]
[&<parameter>…]

http://<servername>/cgi-bin/viewer/getparam.cgi?[<parameter>]
[&<parameter>…]

http://<servername>/cgi-bin/operator/getparam.cgi?[<parameter>]
[&<parameter>…]

http://<servername>/cgi-bin/admin/getparam.cgi?[<parameter>]
[&<parameter>…]
```

where the <*parameter*> should be <*group*>[_<*name*>] or <*group*>[.<*name*>] If you do not specify the any parameters, all the parameters on the server will be returned. If you specify only <*group*>, the parameters of related group will be returned.

When query parameter values, the current parameter value are returned.
Successful control request returns paramter pairs as follows.
Return:

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>
```

where <parameter pair> is

<parameter>=<value>\r\n

[<parameter pair>]

<length> is the actual length of content.

Example: request IP address and it's response

```
Request:
http://192.168.0.123/cgi-bin/admin/getparam.cgi?network_ipaddress

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network.ipaddress=192.168.0.123\r\n
```

Set server parameter values

Note: The access right depends on the URL directory.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/anonymous/setparam.cgi? <parameter>=<value>
[&<parameter>=<value>...][&update=<value>][&return=<return page>]

http://<servername>/cgi-bin/viewer/setparam.cgi? <parameter>=<value>
```


www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

[&<parameter>=<value>...][&update=<value>] [&return=<return page>] http://<*servername*>/cgi-bin/operator/setparam.cgi? <*parameter*>=<*value*> [&<parameter>=<value>...][&update=<value>] [&return=<return page>] http://<*servername*>/cgi-bin/admin/setparam.cgi? <*parameter*>=<*value*> [&<parameter>=<value>...][&update=<value>] [&return=<return page>]

PARAMETER	VALUE	DESCRIPTION
<group>_<name>	value to assigned	Assign <*value*> to the parameter <*group*>_<*name*>
update	<boolean>	set to 1 to actually update all fields (no need to use update parameter in each group)
return	<*return page*>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according the the current path. If you omit this parameter, it will redirect to an empty page. (note: The return page can be a general HTML file(.htm, .html) or a Vivotek server script executable (.vspx) file. It can not be a CGI command. It can not have any extra parameters. This parameter must be put at end of parameter list)

Return:

HTTP/1.0 200 OK\r\n Content-Type: text/html\r\n Context-Length: <length>\r\n \r\n <*parameter pair*>

where <parameter pair> is

<parameter>=<value>\r\n

[<parameter pair>]

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Only the parameters that you set and readable will be returned.

Example: Set the IP address of server to 192.168.0.123

```
Request:
http://myserver/cgi-bin/admin/setparam.cgi?network_ipaddress=192.168.0.123

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network.ipaddress=192.168.0.123\r\n
```

Available parameters on the server

Valid values:

VALID VALUES	DESCRIPTION
string[<n>]	Text string shorter than 'n' characters
password[<n>]	The same as string but display '*' instead
integer	Any number between $(-2^{31} – 1)$ and $(2^{31} – 1)$
positive integer	Any number between 0 and $(2^{32} – 1)$
<m> ~ <n>	Any number between 'm' and 'n'
domain name[<n>]	A string limited to contain a domain name shorter than 'n' characters (eg. www.ibm.com)
email address [<n>]	A string limited to contain a email address shorter than 'n' characters (eg. joe@www.ibm.com)
ip address	A string limited to contain an ip address (eg. 192.168.1.1)
mac address	A string limited to contain mac address without hyphen or colon connected
boolean	A boolean value 1 or 0 represents [Yes or No], [True or False], [Enable or Disable].
<value1>,	Enumeration. Only given values are valid.

<value2>, <value3>, ...	
blank	A blank string
everything inside <>	As description

NOTE: The camera should prevent to restart when parameter changed.

Group: **system**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
hostname	string[40]	1/6	host name of server
ledoff	<boolean>	6/6	turn on(0) or turn off(1) all led indicators
date	<yyyy/mm/dd>, keep, auto	6/6	Current date of system. Set to 'keep' keeping date unchanged. Set to 'auto' to use NTP to synchronize date.
time	<hh:mm:ss>, keep, auto	6/6	Current time of system. Set to 'keep' keeping time unchanged. Set to 'auto' to use NTP to synchronize time.
ntp	<domain name>, <ip address>, <blank>	6/6	**NTP server**
timezoneindex	**-489 ~ 529**	6/6	Indicate timezone and area -480: GMT-12:00 Eniwetok, Kwajalein -440: GMT-11:00 Midway Island, Samoa -400: GMT-10:00 Hawaii -360: GMT-09:00 Alaska -320: GMT-08:00 Las Vegas,

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

			San_Francisco, Vancouver -280: GMT-07:00 Mountain Time, Denver -281: GMT-07:00 Arizona -240: GMT-06:00 Central America, Central Time, Mexico City, Saskatchewan -200: GMT-05:00 Eastern Time, New York, Toronto -201: GMT-05:00 Bogota, Lima, Quito, Indiana -160: GMT-04:00 Atlantic Time, Canada, Caracas ,La Paz, Santiago -140: GMT-03:30 Newfoundland -120: GMT-03:00 Brasilia, Buenos Aires, Georgetown, Greenland -80: GMT-02:00 Mid-Atlantic -40: GMT-01:00 Azores, Cape_Verde_IS. 0: GMT Casablanca, Greenwich Mean Time:Dublin, Edinburgh, Lisbon, London 40: GMT 01:00 Amsterdam, Berlin, Rome, Stockholm, Vienna, Madrid, Paris 41: GMT 01:00 Warsaw, Budapest, Bern 80: GMT 02:00 Athens, Helsinki, Istanbul, Riga

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

			81: GMT 02:00 Cairo 82: GMT 02:00 Lebanon, Minsk 83: GMT 02:00 Israel 120: GMT 03:00 Baghdad, Kuwait, Riyadh, Moscow, St. Petersburg, Nairobi 121: GMT 03:00 Iraq 140: GMT 03:30 Tehran 160: GMT 04:00 Abu Dhabi, Muscat, Baku, Tbilisi, Yerevan 180: GMT 04:30 Kabul 200: GMT 05:00 Ekaterinburg, Islamabad, Karachi, Tashkent 220: GMT 05:30 Calcutta, Chennai, Mumbai, New Delhi 230: GMT 05:45 Kathmandu 240: GMT 06:00 Almaty, Novosibirsk, Astana, Dhaka, Sri Jayawardenepura 260: GMT 06:30 Rangoon 280: GMT 07:00 Bangkok, Hanoi, Jakarta, Krasnoyarsk 320: GMT 08:00 Beijing, Chongging, Hong Kong, Kuala Lumpur, Singapore, Taipei 360: GMT 09:00 Osaka, Sapporo, Tokyo, Seoul, Yakutsk 380: GMT 09:30 Adelaide, Darwin

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

			400: GMT 10:00 Brisbane, Canberra, Melbourne, Sydney, Guam, Vladivostok 440: GMT 11:00 Magadan, Solomon Is., New Caledonia 480: GMT 12:00 Aucklan, Wellington, Fiji, Kamchatka, Marshall Is. 520: GMT 13:00 Nuku'Alofa
updateinterval	0, 3600, 86400, 604800, 2592000	6/6	0 to Disable automatic time adjustment, otherwise, it means the seconds between NTP automatic update interval.
restore	0, <positive integer>	7/6	Restore the system parameters to default value. Restart the server after <value> seconds.
reset	0, <positive integer>	7/6	Restart the server after <value> seconds.
restoreexceptnet	0, <positive integer>	7/6	Restore the system parameters to default value except (ipaddress, subnet, router, dns1, dns2, ddns settings). Restart the server after <value> seconds.

SubGroup of **system**: **info** (The fields in this group are unchangeable.)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
modelname	string[40]	0/7	model name of server
serialnumber	<mac address>	0/7	12 characters mac address without hyphen connected

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

firmwareversion	string[40]	0/7	The version of firmware, including model, company, and version number in the format <MODEL-BRAND-VERSION>
language_default	string[16]	0/7	Default webpage language.
language_count	**<integer>**	0/7	number of webpage language available on the server
language_i<0~(count-1)>	string[16]	0/7	Available language lists

Group: **status**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
di_i<0~(ndi-1)>	<boolean>	1/7	0 => Inactive, normal 1 => Active, triggered
do_i<0~ndi-1)>	<boolean>	1/1	0 => Inactive, normal 1 => Active, triggered
onlinenum_rtsp	integer	6/7	current RTSP connection numbers
onlinenum_httppush	integer	6/7	current HTTP push server connection numbers

Group: **di_i<0~(ndi-1)>**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
normalstate	high, low	1/1	indicate whether open circuit or closed circuit represents inactive status

Group: **do_i<0~(ndo-1)>**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
normalstate	open, grounded	1/1	indicate whether open circuit or closed circuit represents

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

			inactive status

Group: security

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
user_i0_name	string[64]	6/7	User's name of root
user_i<1~20>_name	string[64]	6/7	User's name
user_i0_pass	string [64]	6/6	Root's password
user_i<1~20>_pass	string [64]	7/6	User's password
user_i0_privilege	admin	6/7	Root's privilege
user_i<1~20>_ privilege	viewer, operator, admin	6/6	User's privilege.

Group: **network**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
type	lan, pppoe	6/6	Network connection type
resetip	<boolean>	6/6	1 => get ipaddress, subnet, router, dns1, dns2 from DHCP server at next reboot 0 => use preset ipaddress, subnet, rounter, dns1, and dns2
ipaddress	<ip address>	6/6	IP address of server
subnet	<ip address>	6/6	subnet mask
router	<ip address>	6/6	default gateway
dns1	<ip address>	6/6	primary DNS server
dns2	<ip address>	6/6	secondary DNS server
wins1	<ip address>	6/6	primary WINS server
wins2	<ip address>	6/6	secondary WINS server

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Subgroup of **network**: **ftp**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	21, 1025~65535	6/6	local ftp server port

Subgroup of **network**: **http**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	80, 1025 ~ 65535	6/6	HTTP port
alternateport	1025~65535	6/6	Alternative HTTP port
authmode	basic, digest	1/6	HTTP authentication mode
s0_accessname	string[32]	1/6	Http server push access name for stream 1
s1_accessname	string[32]	1/6	Http server push access name for stream 2

Subgroup of **network**: **rtsp**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	554, 1025 ~ 65535	6/6	RTSP port
authmode	disable, basic, digest	1/6	RTSP authentication mode
s0_accessname	string[32]	1/6	RTSP access name for stream1
s1_accessname	string[32]	1/6	RTSP access name for stream2

Subgroup of **rtsp_s<0~(n-1)>**: **multicast,** n is stream count

NAME	VALUE	SECURITY (get/set)	DESCRIPTION

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

alwaysmulticast	<boolean>	4/4	Enable always multicast
ipaddress	<ip address>	4/4	Multicast IP address
videoport	1025 ~ 65535	4/4	Multicast video port
audioport	1025 ~ 65535	4/4	Multicast audio port
ttl	1 ~ 255	4/4	Mutlicast time to live value

Subgroup of **network**: **rtp**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
videoport	1025 ~ 65535	6/6	video channel port for RTP
audioport	1025 ~ 65535	6/6	audio channel port for RTP

Subgroup of **network**: **pppoe**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
user	string[128]	6/6	PPPoE account user name
pass	password[64]	6/6	PPPoE account password

Group: ipfilter

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
allow_i<0~9>_start	1.0.0.0 ~ 255.255.255.255	6/6	Allowed starting IP address for RTSP connection
allow_i<0~9>_end	1.0.0.0 ~ 255.255.255.255	6/6	Allowed ending IP address for RTSP connection
deny_i<0~9>_start	1.0.0.0 ~ 255.255.255.255	6/6	Denied starting IP address for RTSP connection
deny_i<0~9>_end	1.0.0.0 ~ 255.255.255.	6/6	Denied ending IP address for RTSP connection

	255		

Group: **videoin**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
cmosfreq	50, 60	4/4	CMOS frequency
whitebalance	auto, indoor, fluorescent, outdoor	4/4	auto, auto white balance indoor, 3200K fluorescent, 5500K outdoor, > 5500K

Group: **videoin_c<0~(n-1)>** for n channel products, m is stream number

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
color	0, 1	4/4	0 =>monochrome 1 => color
flip	<boolean>	4/4	flip the image
mirror	<boolean>	4/4	mirror the image
ptzstatus	<integer>	1/7	An 32-bits integer, each bit can be set separately as follows: Bit 0 => Support camera control function 0(not support), 1(support) Bit 1 => **Build-in** or **external** camera. 0(external), 1(build-in) Bit 2 => Support **pan** operation. 0(not support), 1(support) Bit 3 => Support **tilt** operation. 0(not support), 1(support) Bit 4 => Support **zoom** operation. 0(not support),

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

			1(support) Bit 5 => Support **focus** operation. 0(not support), 1(support)
text	string[16]	4/4	enclosed caption
imprinttimestamp	<boolean>	4/4	Overlay time stamp on video
maxexposure	1~120	4/4	Maximum exposure time
s<0~(m-1)>_codectype	mpeg4, mjpeg	4/4	video codec type
s<0~(m-1)>_keyinterval	1, 3, 5, 10, 30, 60, 90, 120	4/4	Key frame interval
s<0~(m-1)>_resolution	176x144, 320x240, 640x480,,	4/4	Video resolution in pixel
s<0~(m-1)>_ratecontrolmode	cbr, vbr	4/4	cbr, constant bitrate vbr, fix quality
s<0~(m-1)>_quant	1, 2, 3, 4, 5	4/4	quality of video when choosing vbr in “ratecontrolmode”. 1 is worst quality and 5 is the best quality.
s<0~(m-1)>_bitrate	20000, 30000, 40000, 50000, 64000, 128000, 256000, 384000, 512000, 768000, 1000000, 1200000, 1500000,	4/4	set bit rate in bps when choose cbr in “ratecontrolmode”

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

	2000000, 3000000, 4000000		
s<0~(m-1)>_maxframe	1, 2, 3, 5, 10, 15, 20, 25, 30 (only for NTSC or 60Hz CMOS)	4/4	set maximum frame rate in fps
s<0~(m-1)>_forcei	1	7/6	Force I frame

Group: **audioin_c<0~(n-1)>** for n channel products

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
source	micin, linein	4/4	micin => use external microphone input linein => use line input, i.e. internal microphone
mute	0, 1	4/4	Enable audio mute
gain	0~31	4/4	Gain of input
boostmic	0, 1	4/4	Enable microphone boost
s<0~(m-1)>_codectype	aac4, gamr	4/4	set audio codec type for input
s<0~(m-1)>_aac4_bitrate	16000, 32000, 48000, 64000, 96000, 128000	4/4	set AAC4 bitrate in bps
s<0~(m-1)>_gamr_bitrate	4750, 5150, 5900, 6700, 7400, 7950,	4/4	set AMR bitrate in bps

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

	10200, 12200		

Group: **image_c<0~(n-1)>** for n channel products

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
brightness	-5 ~ 5	4/4	Adjust brightness of image according to mode settings.
saturation	-5 ~ 5	4/4	Adjust saturation of image according to mode settings.
contrast	-5 ~ 5	4/4	Adjust contrast of image according to mode settings.
hue	-5 ~ 5	4/4	Adjust hue of image according to mode settings.

Group: **motion_c<0~(n-1)>** for n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	enable motion detection
win_i<0~2>_enable	<boolean>	4/4	enable motion window 1~3
win_i <0~2>_name	string[14]	4/4	name of motion window 1~3
win_i <0~2>_left	0 ~ 320	4/4	Left coordinate of window position.
win_i <0~2>_top	0 ~ 240	4/4	Top coordinate of window position.
win_i <0~2>_width	0 ~ 320	4/4	Width of motion detection window.
win_i<0~2>_height	0 ~ 240	4/4	Height of motion detection window.
win_i<0~2>_objsize	0 ~ 100	4/4	Percent of motion detection window.
win_i<0~2>_sensitivity	0 ~ 100	4/4	Sensitivity of motion detection window.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Group: **ddns**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the dynamic dns.
provider	Safe100, DyndnsDynamic, DyndnsCustom, TZO, DHS, DynInterfree, PeanutHull, CustomSafe100	6/6	Safe100 => safe100.net DyndnsDynamic => dyndns.org (dynamic) DyndnsCustom => dyndns.org (custom) TZO => tzo.com DHS => dhs.org DynInterfree =>dyn-interfree.it PeanutHull => peanut hull CustomSafe100 => Custom server using safe100 method
<provider>_hostname	string[128]	6/6	Your dynamic hostname.
<provider>_usernameemail	string[64]	6/6	Your user or email to login ddns service provider
<provider>_passwordkey	string[64]	6/6	Your password or key to login ddns service provider
<provider>_servername	**string[128]**	6/6	The server name for safe100. (This field only exists for provider is customsafe100)

Group: upnppresentation

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the UPNP presentation service.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Group: upnpportforwarding

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the UPNP port forwarding service.
upnpnatstatus	0~3	6/7	The status of UpnP port forwarding, used internally. 0 is OK, 1 is FAIL, 2 is no IGD router, 3 is no need to do port forwarding

Group: **syslog**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enableremotelog	<boolean>	6/6	enable remote log
serverip	<IP address>	6/6	Log server IP address
serverport	514, 1025~65535	6/6	Server port used for log
level	0~7	6/6	The levels to distinguish the importance of information. 0: LOG_EMERG 1: LOG_ALERT 2: LOG_CRIT 3: LOG_ERR 4: LOG_WARNING 5: LOG_NOTICE 6: LOG_INFO 7: LOG_DEBUG

Group: **privacymask_c<0~(n-1)>** for n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable the privacy mask

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

win_i<0~4>_enable	<boolean>	4/4	Enable the privacy mask window
win_i<0~4>_name	string[14]	4/4	The name of privacy mask window
win_i<0~4>_left	0 ~ 320/352	4/4	Left coordinate of window position.
win_i<0~4>_top	0 ~ 240/288	4/4	Top coordinate of window position.
win_i<0~4>_width	0 ~ 320/352	4/4	Width of privacy mask window
win_i<0~4>_height	0 ~ 240/288	4/4	Height of privacy mask window

Group: capability

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
api_http_version	0200a	0/7	The HTTP API version.
bootuptime	<positive integer>	0/7	The server bootup time
nir	0, <positive integer>	0/7	number of IR interface
ndi	0, <positive integer>	0/7	number of digital input
ndo	0, <positive integer>	0/7	number of digital output
naudioin	0, <positive integer>	0/7	number of audio input
naudioout	0, <positive integer>	0/7	number of audio output
nvideoin	<positive	0/7	number of video input

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

	integer>		
nmediastream	<positive integer>	0/7	number of media stream per channel
nvideosetting	<positive integer>	0/7	number of video settings per channel
naudiosetting	<positive integer>	0/7	number of audio settings per channel
nuart	0, <positive integer>	0/7	number of UART interface
ptzenabled	< boolean >	0/7	indicate whether to support PTZ control
protocol_https	< boolean >	0/7	indicate whether to support http over SSL
protocol_rtsp	< boolean >	0/7	indicate whether to support rtsp
protocol_sip	<boolean>	0/7	indicate whether to support sip
protocol_maxconnection	<positive integer>	0/7	The maximum allowed simultaneous connections
protocol_rtp_multicast_scalable	<boolean>	0/7	indicate whether to support scalable multicast
protocol_rtp_multicast_backchannel	<boolean>	0/7	indicate whether to support backchannel multicast
protocol_rtp_tcp	<boolean>	0/7	indicate whether to support rtp over tcp
protocol_rtp_http	<boolean>	0/7	indicate whether to support rtp over http
protocol_spush_mjpeg	<boolean>	0/7	indicate whether to support server push motion jpeg
protocol_snmp	<boolean>	0/7	indicate whether to support snmp
videoin_type	0, 1, 2	0/7	0 => Interlaced CCD

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

			1 => Progressive CCD 2 => CMOS
videoin_resolution	<a list of the available resolution separates by comma)	0/7	available resolutions list
videoin_codec	<a list of the available codec types separaters by comma)	0/7	available codec list
videoout_codec	<a list of the available codec types separaters by comma)	0/7	available codec list
audio_aec	<boolean>	0/7	indicate whether to support acoustic echo cancellation
audio_extmic	<boolean>	0/7	indicate whether to support external microphone input
audio_linein	<boolean>	0/7	indicate whether to support external line input
audio_lineout	<boolean>	0/7	indicate whether to support line output
audio_headphoneout	<boolean>	0/7	indicate whether to support headphone output
audioin_codec	<a list of the available codec types separaters by comma)	0/7	available codec list
audioout_codec	<a list of the available	0/7	available codec list

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

	codec types separaters by comma)		
camctrl_httptunnel	<boolean>	0/7	Indicate whether to support the http tunnel for camera control
uart_httptunnel	<boolean>	0/7	Indicate whether to support the http tunnel for uart transfer
transmission_mode	Tx, Rx, Both	0/7	Indicate what kind of transmission mode the machine used. TX: server, Rx: receiver box, Both: DVR?.
network_wire	<boolean>	0/7	Indicate whether to support the Ethernet
network_wireless	<boolean>	0/7	Indicate whether to support the wireless
wireless_802dot11b	<boolean>	0/7	Indicate whether to support the wireless 802.11b+
wireless_802dot11g	<boolean>	0/7	Indicate whether to support the wireless 802.11g
wireless_encrypt_wep	<boolean>	0/7	Indicate whether to support the wireless WEP
wireless_encrypt_wpa	<boolean>	0/7	Indicate whether to support the wireless WPA
wireless_encrypt_wpa2	<boolean>	0/7	Indicate whether to support the wireless WPA2

Group: event_i<0~2>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	The identification of this entry

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

enable	0, 1	6/6	To enable or disable this event.
priority	0, 1, 2	6/6	Indicate the priority of this event. "0" indicates low priority. "1" indicates normal priority. "2" indicates high priority.
delay	1~999	6/6	Delay seconds before detect next event.
trigger	boot, di, motion, seq,	6/6	Indicate the trigger condition. "boot" indicates system boot. "di" indicates digital input. "motion" indicates video motion detection. "seq" indicates periodic condition.
di	<integer>	6/6	Indicate which di detected. This field is required when trigger condition is "di". One bit represents one digital input. The LSB indicates DI 0.
mdwin	<integer>	6/6	Indicate which motion detection windows detected. This field is required when trigger condition is "md". One bit represents one window. The LSB indicates the 1st window. For example, to detect the 1st and 3rd windows, set mdwin as 5.
inter	1~999	6/6	Interval of period snapshot in minute. This field is used when trigger condition is "seq".

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

weekday	<interger>	6/6	Indicate which weekday is scheduled. One bit represents one weekday. The bit0 (LSB) indicates Saturday. The bit1 indicates Friday. The bit2 indicates Thursday. The bit3 indicates Wednesday. The bit4 indicates Tuesday. The bit5 indicates Monday. The bit6 indicates Sunday. For example, to detect events on Friday and Sunday, set weekday as 66.
begintime	hh:mm	6/6	Begin time of weekly schedule.
endtime	hh:mm	6/6	End time of weekly schedule. (00:00 ~ 24:00 means always.)
action_do_i<0~(ndo-1)>_enable	0, 1	6/6	To enable or disable trigger digital output.
action_do_i<0~(ndo-1)>_duration	1~999	6/6	The duration of digital output is triggered in seconds.
action_server_i<0~4>_enable	0, 1	6/6	To enable or disable this server action. The default value is 0.
action_server_i<0~4>_media	NULL, 0~4	6/6	The index of attached media.

Group: server_i<0~4>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	The identification of this entry
type	email, ftp, http, ns	6/6	Indicate the server type. "email" is email server. "ftp" is ftp server. "http" is http server. "ns" is network storage.
http_url	string[128]	6/6	The url of http server to upload.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

http_username	string[64]	6/6	The username to login in the server.
http_passwd	string[64]	6/6	The password of the user.
ftp_address	string[128]	6/6	The ftp server address
ftp_username	string[64]	6/6	The username to login in the server.
ftp_passwd	string[64]	6/6	The password of the user.
ftp_port	0~65535	6/6	The port to connect the server.
ftp_location	string[128]	6/6	The location to upload or store the media.
ftp_passive	0, 1	6/6	To enable or disable the passive mode. 0 is to disable the passive mode. 1 is to enable the passive mode.
email_address	string[128]	6/6	The email server address
email_username	string[64]	6/6	The username to login in the server.
email_passwd	string[64]	6/6	The password of the user.
email_senderemail	string[128]	6/6	The email address of sender.
email_recipientemail	string[128]	6/6	The email address of recipient.
ns_location	string[128]	6/6	The location to upload or store the media.
ns_username	string[64]	6/6	The username to login in the server.
ns_passwd	string[64]	6/6	The password of the user.
ns_workgroup	string[64]	6/6	The workgroup for network storage.

Group: media_i<0~4>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	The identification of this entry
type	snapshot, systemlog videoclip	6/6	The media type to send to the server or store by the server.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

snapshot_source	<integer>	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc.
snapshot_prefix	string[16]	6/6	Indicate the prefix of the filename.
snapshot_datesuffix	0, 1	6/6	To add date and time suffix to filename or not. 1 means to add date and time suffix. 0 means not to add it.
snapshot_preevent	0 ~ 7	6/6	It indicates the number of pre-event images.
snapshot_postevent	0 ~ 7	6/6	The number of post-event images.
videoclip_source	<integer>	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc.
videoclip_prefix	string[16]	6/6	Indicate the prefix of the filename.
videoclip_preevent	0 ~ 9	6/6	It indicates the time of pre-event recording in seconds.
videoclip_maxduration	1 ~ 10	6/6	The time of maximum duration of one video clip in seconds.
videoclip_maxsize	50 ~ 1500	6/6	The maximum size of one video clip file in Kbytes.

Group: record_i<0~1>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	The identification of this entry
enable	0, 1	6/6	To enable or disable this recoding.
priority	0, 1, 2	6/6	Indicate the priority of this recoding. "0" indicates low priority. "1" indicates normal priority. "2" indicates high priority.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

source	<integer>	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc.
weekday	<interger>	6/6	Indicate which weekday is scheduled. One bit represents one weekday. The bit0 (LSB) indicates Saturday. The bit1 indicates Friday. The bit2 indicates Thursday. The bit3 indicates Wednesday. The bit4 indicates Tuesday. The bit5 indicates Monday. The bit6 indicates Sunday. For example, to detect events on Friday and Sunday, set weekday as 66.
begintime	hh:mm	6/6	Begin time of weekly schedule.
endtime	hh:mm	6/6	End time of weekly schedule. (00:00~24:00 means always.)
prefix	string[16]	6/6	Indicate the prefix of the filename.
cyclesize	<integer>	6/6	The maximum size for cycle recording in Kbytes.
maxfilesize	200~6000	6/6	The max size for one file in Kbytes

Drive the digital output

Note: This request requires the privilege of viewer.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/setdo.cgi?do1=<state>[&do2=<state>]
[&do3=<state>][&do4=<state>][&return=<return page>]
```

Where state is 0, 1. “0” means inactive or normal state while “1” means active or

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

triggered state.

PARAMETER	VALUE	DESCRIPTION
do<num>	0, 1	0 – inactive, normal state
		1 – active, triggered state
return	<*return page*>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according the the current path. If you omit this parameter, it will redirect to an empty page.

Example: Drive the digital output 1 to triggered state and redirect to an empty page
http://myserver/cgi-bin/dido/setdo.cgi?do1=1

Query status of the digital input

Note: This request requires the privilege of viewer.
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/getdi.cgi?[di0][&di1][&di2][&di3]
```

If no parameter is specified, all the status of digital input will be returned.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <length>\r\n
\r\n
[di0=<state>]\r\n
[di1=<state>]\r\n
[di2=<state>]\r\n
```


www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

[di3=<*state*>]\r\n

where <*state*> can be 0 or 1.

Example: Query the status of digital input 1

Request:

http://myserver/cgi-bin/dido/getdi.cgi?di1

Response:

HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
\r\n
di1=1\r\n

Query status of the digital output

Note: This request requires the privilege of viewer.

Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/dido/getdo.cgi?[do0][&do1][&do2][&do3]

If no parameter is specified, all the status of digital output will be returned.

Return:

HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <*length*>\r\n
\r\n
[do0=<*state*>]\r\n
[do1=<*state*>]\r\n
[do2=<*state*>]\r\n

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

[do3=<*state*>]\r\n

where <*state*> can be 0 or 1.

Example: Query the status of digital output 1

Request:
http://myserver/cgi-bin/dido/getdo.cgi?do1

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
\r\n
do1=1\r\n

Capture single snapshot

Note: This request require normal user privilege
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/viewer/video.jpg?[channel=<value>][&resolution=<value>][&quality=<value>]

If the user requests the size larger than all stream setting on the server, this request will failed!

PARAMETER	VALUE	DEFAULT	DESCRIPTION
channel	0~(n-1)	0	the channel number of video source
resolution	<available resolution>	0	The resolution of image
quality	1~5	3	The quality of image

Server will return the most up-to-date snapshot of selected channel and stream in

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

JPEG format. The size and quality of image will be set according to the video settings on the server.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: image/jpeg\r\n
[Content-Length: <image size>\r\n]

<binary JPEG image data>
```

Account management

Note: This request requires administrator privilege
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/editaccount.cgi?
method=<value>&username=<name>[&userpass=<value>][&privilege=<value>]
[&privilege=<value>][...][&return=<return page>]
```

PARAMETER	VALUE	DESCRIPTION
method	add	Add an account to server. When using this method, “username” field is necessary. It will use default value of other fields if not specified.
	delete	Remove an account from server. When using this method, “username” field is necessary, and others are ignored.
	edit	Modify the account password and privilege. When using this method, “username” field is necessary, and other fields are optional. If not specified, it will keep original settings.
username	<name>	The name of user to add, delete or edit

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

userpass	<value>	The password of new user to add or that of old user to modify. The default value is an empty string.
privilege	<value>	The privilege of user to add or to modify.
	viewer	viewer's privilege
	operator	operator's privilege
	admin	administrator's privilege
return	<return page>	Redirect to the page *<return page>* after the parameter is assigned. The *<return page>* can be a full URL path or relative path according the the current path. If you omit this parameter, it will redirect to an empty page.

System logs

Note: This request require administrator privilege
Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/syslog.cgi
```

Server will return the up-to-date system log.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <syslog length>\r\n
\r\n
<system log information>\r\n
```


www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Upgrade firmware

Note: This request requires administrator privilege
Method: POST

Syntax:

http://*<servername>*/cgi-bin/admin/upgrade.cgi

Post data:

fimage=<file name>[&return=<return page>]\r\n \r\n <multipart encoded form data>

Server will accept the upload file named <file name> to be upgraded the firmware and return with <return page> if indicated.

IP filtering

Note: This request requires administrator access privilege
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/admin/ipfilter.cgi? method=<value>&[start=<*ipaddress*>&end=<*ipaddress*>][&index=<*value*>] [&return=<return page>]

PARAMETER	VALUE	DESCRIPTION
Method	addallow	Add a set of allow IP address range to server. Start and end parameters must be specified. If the index parameter is specified, it will try to add starting from index position.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

	adddeny	Add a set of deny IP address range to server. Start and end parameters must be specified. If the index parameter is specified, it will try to add starting from index position.
	deleteallow	Remove a set of allow IP address range from server. If start and end parameters are specified, it will try to remove the matched IP address. If index is specified, it will try to remove the address from given index position. [start, end] parameters have higher priority then the [index] parameter.
	deletedeny	Remove a set of deny IP address range from server. If start and end parameters are specified, it will try to remove the matched IP address. If index is specified, it will try to remove the address from given index position. [start, end] parameters have higher priority then the [index] parameter.
start	<ip address>	The start IP address to add or to delete.
end	<ip address>	The end IP address to add or to delete.
index	<value>	The start position to add or to delete.
return	<return page>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according the the current path. If you omit this parameter, it will redirect to an empty page.

RTSP SDP

Note: This request requires viewer access privilege
Method: GET/POST

Syntax:

http://<*servername*>/viewer/<0~(n-1)>/<network_accessname_<0~(m-1)>> rtsp://<*servername*>/<0~(n-1)>/<network_accessname_<0~(m-1)>>

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

“n” is the channel number and “m” is the stream number.

You can get the SDP by HTTP or just describe by RTSP protocol directly. For detailed streaming protocol, please refer to “control signaling” and “data format” documents.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

C. Technical specifications

System and Hardware	Security
● CPU: VVTK-1000 SoC ● Flash: 8MB ● RAM: 64MB ● Lens: CS-mount, 2.9~8.2mm Vari-focal, auto-iris ● Angle of view: 95 ° ~ 35.6 ° (horizontal) ● IR Corrected ● Image sensor: 1/4", Progressive scan CCD sensor with VGA resolution ● Shutter time: 1/30 sec. to 1/15000 sec. ● Embedded removable IR-cut filter for day & night function ● Embedded OS: Linux 2.4	● Multi-level user access with password protection ● IP address filtering ● Wireless: WEP, WPA-PSK, WPA2 (IP7152) **Power** ● 12V DC ● 802.3af compliant power over Ethernet (IP7151) **LED Indicator** ● Bi-color LED system status indicator
Video ● MJPEG & MPEG-4 video with resolution up to 640x480 (VGA) ● Frame rates: ■ 640x480 up to 30fps	**Dimension (including lens)** ● 205.5mm(D) x 82.1mm (W) x 51.2mm(H) **Weight (including lens)** ● Net: 568g (IP7151) ● Net: 581g (IP7152)
Audio ● GSM-AMR speech encoding, Bit rate: 4.75 Kbps to 12 Kbps ● MPEG-4 AAC audio encoding, Bit rate: 16 Kbps to 128 Kbps ● Two-way audio (*) ● Built-in microphone ● External microphone input ● Audio output ● Support audio mute	**Operating Environments** ● Temperature: 0 ° ~ 40 ° C (32 ° ~ 104 ° F) ● Humidity: 20 % ~ 80 % RH **Applications** ● Installation Wizard 2 ● 16-ch recording software ● Support firmware upgrade ● SDK available for application development and system integration
Streaming ● Simultaneously dual-streaming ● MPEG-4 streaming over UDP, TCP, or HTTP ● MPEG-4 multicast streaming	**EMI and Safety** ● CE, FCC, C-Tick, LVD, MIC

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

● MJPEG streaming over HTTP ● Supports 3GPP mobile surveillance **Image settings** ● Adjustable image size, quality, and Bit-rate ● Time stamp and text caption overlay ● Flip & mirror ● Configurable brightness, contrast, saturation ● AGC, AWB, AEC ● Automatic or manual day/night mode ● Backlight compensation(BLC) ● Privacy mask **Networking** ● 10/100 Mbps Ethernet, RJ-45 ● Protocols: IPv4,TCP/IP, HTTP, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, and PPPoE ● Built-in 802.11b/g WLAN (IP7152) **Event Management** ● Multiple-window video motion detection ● One D/I and one D/O for external sensor and alarm ● Event notification using HTTP, SMTP, or FTP ● Local recording of MP4 file	**Viewing System Requirements** ● OS: Microsoft Windows 2000/XP ● Browser: Internet Explorer 5.x or above ● Cellphone: 3GPP player ● Real Player 10.5 ● Quick Time 6.5 ● Packet Video Player 3.0

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Technology License Notice

MPEG-4 AAC Technology

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 AAC AUDIO PATENT LICENSE. THIS PRODUCT MAY NOT BE DECOMPILED, REVERSE-ENGINEERED OR COPIED, EXCEPT REGARD TO PC SOFTWARE, YOU MAY MAKE SINGLE COPIES FOR ARCHIVAL PURPOSES. FOR MORE INFORMATION, PLEASE REFER TO HTTP://WWW.VIALICENSING.COM.

MPEG-4 Visual Technology

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 VISUAL PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER FOR (i) ENCODING VIDEO IN COMPLIANCE WITH THE MPEG-4 VISUAL STANDARD ("MPEG-4 VIDEO") AND/OR (ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED BY MPEG LA TO PROVIDE MPEG-4 VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION INCLUDING THAT RELATING TO PROMOTIONAL, INTERNAL AND COMMERCIAL USES AND LICENSING MAY BE OBTAINED FROM MPEG LA, LLC. SEE HTTP://WWW.MPEGLA.COM.

AMR-NB Standard

THIS PRODUCT IS LICENSED UNDER THE AMR-NB STANDARD PATENT LICENSE AGREEMENT. WITH RESPECT TO THE USE OF THIS PRODUCT, THE FOLLOWING LICENSORS' PATENTS MAY APPLY:

TELEFONAKIEBOLAGET ERICSSON AB: US PAT. 6192335; 6275798; 6029125; 6424938; 6058359. NOKIA CORPORATION: US PAT. 5946651; 6199035. VOICEAGE CORPORATION: AT PAT. 0516621; BE PAT. 0516621; CA PAT. 2010830; CH PAT. 0516621; DE PAT. 0516621; DK PAT. 0516621; ES PAT. 0516621; FR PAT. 0516621; GB PAT. 0516621; GR PAT. 0516621; IT PAT. 0516621; LI PAT. 0516621; LU PAT. 0516621; NL PAT. 0516621; SE PAT 0516621; US PAT 5444816; AT PAT. 819303/AT E 198805T1; AU PAT. 697256; BE PAT. 819303; BR PAT. 9604838-7; CA PAT. 2216315; CH PAT. 819303; CN PAT. ZL96193827.7; DE PAT. 819303/DE69611607T2; DK PAT. 819303; ES PAT. 819303; EP PAT. 819303; FR PAT. 819303; GB PAT. 819303; IT PAT. 819303; JP PAT. APP. 8-529817; NL PAT. 819303; SE PAT. 819303; US PAT. 5664053. THE LIST MAY BE UPDATED FROM TIME TO TIME BY LICENSORS AND A CURRENT VERSION OF WHICH IS AVAILABLE ON LICENSOR'S WEBSITE AT HTTP://WWW.VOICEAGE.COM.

www.vivotek.com
T: 886-2-82455282
F: 886-2-82455532

Electromagnetic Compatibility (EMC)

This device compiles with FCC Rules Part 15. Operation is subject to the following two conditions.

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

USA - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a partial installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the seperation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.
Shielded interface cables must be used in order to comply with emission limits.

Europe CE - This digital equipment fulfills the requirement for radiated emission according to limit B of EN55022/1998, and the requirement for immunity according to EN50082-1/1992.

Liability
Vivotek Inc. cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Vivotek Inc. makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for any particular purpose.